Consumer trust and food safety.

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Vincent Wiegerinck

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An attributional approach to food safety incidents and channel response.

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STELLINGEN

Behorend bij het proefschrift

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- Consumenten zijn slecht in staat voedselincidenten die zij zelf in de keuken veroorzaken te herkennen. Het aantal incidenten dat zij zelf rapporteren ligt onder het aantal incidenten dat experts op basis van microbiologisch onderzoek vermoeden. Consumenten zijn dus klaarblijkelijk niet in staat eventuele ziekteverschijnselen in verband te brengen met een voedselincident of willen dit verband niet leggen.
  (gebaseerd op hoofdstuk 1 van het proefschrift)

- Bij communicatie over voedselveiligheid is het belangrijk te beseffen dat voedselveiligheid vooral een emotioneel construct is, dat niet scherp is afgebakend en associaties oproept met 'natuurlijk' en 'dierenwelzijn'. De effectiviteit van een rationele argumentatie naar een consument ter verklaring van de oorzaak van een voedselincident is dan ook beperkt.
  (gebaseerd op hoofdstuk 2 van het proefschrift)

- Enige scepsis bij het beeld van bedrijven die kordaat optreden bij voedselincidenten is op zijn plaats. Besluitvorming blijkt in de praktijk weerbarstiger te zijn dan persberichten ons soms doen geloven.
  (gebaseerd op hoofdstuk 3 van het proefschrift)

- Gezien de uitkomsten van het onderzoek, dient attributie-onderzoek binnen het domein van ketens en netwerken zich niet te beperken tot de traditionele indeling in alleen een interne en externe actor, maar dient het meerdere externe actoren te omvatten.
  (gebaseerd op hoofdstuk 4 van het proefschrift)

- Het oogmerk zichzelf te verrijken door middel van frauduleuze handelingen met voedingsmiddelen is eeuwenoud. Gezien de ernstige consequenties voor het consumentenvertrouwen dient hier zeker in 21ste eeuw resoluut tegen te worden opgetreden.
  (gebaseerd op hoofdstuk 4 van het proefschrift)

- Het feit dat aan food-retailers een grotere rol wordt toegedicht als 'poortwachter' van de keten, kan aanleiding zijn tot powerplay van de kant van de food-retailer.
  (gebaseerd op hoofdstuk 4 van het proefschrift)

- Het optrekken van rookgordijnen is een meer eigentijdse vertaling van 'stonewalling' als praktijk van bedrijven om openheid te omzeilen.
  (gebaseerd op hoofdstuk 5 van het proefschrift)

- Het gezegde dat vertrouwen te voet komt en op een paard verdwijnt is in dit snelle, digitale tijdperk een overschatting van de snelheid van het paard.

- Ouders wier kinderen menen dat melk uit de fabriek komt, denken waarschijnlijk ook dat alle melkveehouders een enorm groot gazon hebben.

- Het aantal aanmeldingen van vrouwen voor het programma 'Boer zoekt vrouw' doet vermoeden dat termen als 'boers' en 'boerenkinkel' geen negatieve betekenis meer hebben.

Consumer Trust and Food Safety

An attributional approach to food safety incidents and channel response

Proefschrift

ter verkrijging van de graad van doctor aan de Universiteit van Tilburg, op gezag van de rector magnificus, prof. F.A. van der Duyn Schouten, in het openbaar te verdedigen ten overstaan van een door het college voor promoties aangewezen commissie in de aula van de Universiteit op dinsdag 19 december 2006 om 14.15 uur door

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To my Parents

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Writing a dissertation is an exhausting task. Keen interest in the subject is what drives you; support from others is what helps you. Three motives stimulated me to choose the subject of Food Safety and Trust. First was my own experience in the food industry from 1974 till 2000. Having the opportunity to examine food safety incidents from an academic point of view was challenging. Second was the need, as articulated by KLICT,[1] to examine food safety and food safety incidents from the point of view of connected firms in supply chains and networks. Third, I was strongly advised by Theo Verhallen, my promoter, to investigate this societally relevant subject.

That brings me to the support I received from others in this process. Of course, the academic quality of this dissertation is my sole responsibility, but the help and support of others was indispensable. Many people supported me over these last five years. First I want to thank Jan Jonker, Radboud University. Jan, as my thesis supervisor in 1993, you were the person who strongly recommended, when I was at a crossroad in my life, that I choose teaching and research. Thank you, Jan, for the suggestion and the introduction into the academic world. But I am most indebted to Theo Verhallen, my supervisor and mental coach. Theo, thanks for all the hours you have spent with me, despite your heavy workload as Dean of the Faculty. I learned a lot from you. You are a truly knowledgeable and amiable person. I would also like to thank Rik Pieters, not only as an honourable member of my committee, but also as head of the department, who had confidence in me and welcomed me as member of the department in September 2000. Rik, you are a critical scholar of very high quality. I wish to thank the other honourable members of the committee as well, Bart Vos, Tiny van Boekel, Lynn Frewer, and Gerjo Kok: it was an honour to have you in my committee. Thanks to Els Gijsbrechts and Henk Roest for taking my workload into consideration, in particular in the last phase of writing this dissertation. Thanks Han van der Zee for your valuable suggestions. Thanks also to all my present and previous colleagues in the Marketing Department for their interest and support. Thanks to Annemiek van Gool, I enjoy working with you in International Marketing; Hans Haans, as 'young' roommate; and Roger Bougie, for sharing pre-defence feelings. In particular, I would like to thank Stefan Wuyts for his advice in the final stage of the analysis, and Inge Geyskens, not only for commenting on some chapters,

[1] KLICT (Chain networks, Clusters and Information & Communication Technology), a project supported by the Dutch Government. KLICT served as a broker of and a 'liaison office' between the business world, research institutes, social organizations, and the authorities.

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Chapter 1 On Food Safety and Food Safety Incidents

What Kind of World Is It Where Even Pickles Aren't Safe Anymore?
Mittrof, Ian and Ralph H. Kilmann in 'Corporate Tragedies'
Praeger, 1984

1.1 Introduction

On 25th February 2006, Masterfoods advised consumers through special ads in the Dutch newspapers[1] not to consume M&M's crispy products if they had a specific production code on the wrapper. Products with this code contained the M&M's peanut variety and not the crispy product. Consumption of the peanut variety could be harmful or even deadly (anaphylactic shock) for consumers suffering from a peanut allergy. Packaging with this code could be forwarded to Masterfoods, who would reimburse the purchase price. Masterfoods recalled existing stocks at wholesalers and retailers.

In the same month, Unilever[2] recalled one of their Iglo frozen food products because some packaging could contain small slivers of glass. Bauer, a dairy producer, had to make a similar announcement[2] as slivers of glass were found in their creamy yoghurt. Other news related to food safety in that month were the destruction of pigs contaminated with dioxin, the discovery by the authorities of tainted meat from Germany in the Dutch market, and the significant reduction of the export of chickens and chicken meat owing to the fear of Bird Flu.

Cases like the ones described above, but also food safety incidents that occurred longer ago, like nitrate in frozen food (Iglo) in 1960, benzene in mineral water (Perrier) in 1990, beer with slivers of glass (Heineken) in 1993, or dioxin in chicken and dairy products in 1999, raise questions about who is to be held responsible for the incident, or who is to blame for the incident from the consumer's point of view. They also raise questions about the impact of such incidents on consumer behavior and on the effect of supply chain member responses to such incidents. We investigated various aspects of food safety related to consumers' attitudes and behavior.

[1] Volkskrant, February 25, 2006.
[2] Volkskrant, February 9, 2006.

1.2 What is Food Safety?

One definition of food safety is 'the guarantee that preparation and consumption will have no harmful effects on the consumer, taking into account the objective and the way of consumption of the food' (*AgriHolland 2004*). Safety is an essential condition for marketing any food product (Pascal 2000). Food safety is seen as a *credence* attribute (Böcker 2002; Böcker and Hanf 2000; Caswell and Mojduszka 1996), as it is very difficult or even impossible for a consumer to assess the level of safety before and even after consumption. Van Ravenswaay (1988) underlined the credence attributes of food safety: 'Safety is not a good that consumers can go out to the supermarket to buy...rather, safety is a characteristic of the goods and services that they buy, and it is a characteristic that is extremely costly-and in some cases impossible-to assess'. Van Trijp (2003) states that food safety is a possible source of dissatisfaction, punishing channel members who are unable to comply with this basic requirement, and barely rewarding those channel members who meet the demands. Van Trijp (2003) argues that food safety is not purely a credence attribute but also contains experience elements. Expectations about the safety of a food product, which are confirmed or disconfirmed by experience, cause the consumer to update his views. In van Trijp's opinion, based on research by Frewer et al. (1996), food safety is a multi-dimensional construct associated with, among other things, perceived personal risk, perceived impact on the environment, ethical concerns, and benefits of the product and the production technology for the consumer him- or herself.

Concern about the safety of food products is as old as mankind (van Gorcom 2003; van Stigt Thans 1988), and the battle against unsafe food is expected never to stop (Schuttelaar 2003). Questions about what is eatable or drinkable and what not have been raised since the early days. Bungling and forging, for instance, examples of threats to the safety of food products, exist as long as people have been preparing and trading foodstuffs, especially in cities, where direct contact between farmer and consumer has disappeared. Today in the Netherlands, certification programs like BRC/Eurepgap (quality certification system used by retailers), IKB (consumer certificate), Milieukeur, ISO 4001 (certificate of environmental control), and intensified government control have taken over the function of personal guarantee, owing to the greater distance between production and consumption and the larger scale of production.

We explored how main stakeholders concerned with food safety (consumers, supply chain members, and experts) perceive food safety. What does food safety mean in their eyes; how do they cope with food safety issues in day-to-day life? What are their personal experiences with food safety? How do supply chain members respond to food safety incidents? In particular we investigated what the effects were of different responses by supply chain members to food safety incidents on consumers' trust and behavioral intention.

Trust, Risk, and Food Safety

Consumers in the Netherlands generally perceive food products as safe (Dagevos and Hansman 2003; de Jonge et al. 2004a; Erasmus Food Management Instituut and Centraal Bureau Levensmiddelen 2006; European Commission 2006). Food safety does not appear to play an important role in everyday purchasing routines, at least under normal conditions. Consumers pay more attention to taste, price, and freshness of food products and take safety for granted (European Commission 2006; Future-Of-Food 2001; Verbeke, Scholderer, and Frewer 2006). Longitudinal research has shown that consumers' trust in the safety of food products in the Netherlands was quite stable over the 2001-2004 period and was found to be relatively high compared with other European countries (Poppe and Kjaernes 2003; Timmers and de Jonge 2004). This public confidence in food safety, however, seems to be fragile and is influenced by the occurrence of food safety incidents, information and rumors about threatening food-borne diseases that may affect human health, and their subsequent exposure in the media. There is strong evidence that food safety incidents result in lower consumer trust in products and brands (de Jonge et al. 2005; de Jonge et al. 2004b; GFK Panelservices Benelux 2001), lower consumption or postponed consumption of suspect products or brands (Pennings, Wansink, and Meulenberg 2002; van Heerde, Helsen, and Dekimpe forthcoming; Verbeke 2001; Verbeke and Viaene 2001), an increase in consumer concerns (Eilander and Wolff 1999; Erasmus Food Management Instituut 2003), and feelings that insufficient measures are taken to secure the safety of food products.

The effects of food safety incidents, however, have been shown not to be uniform. Drops in sales appear to be temporary in some countries, whereas more long-lasting effects can be observed in other countries. Poultry sales in Belgium, for instance, had almost recovered in 2000 after the dioxin crisis of 1999 (Verbeke 2001; Verbeke 2003). In Germany, on the other hand, consumers showed a much stronger reaction to the BSE crisis, apparently owing to their aversion to risk, which outstrips that of Dutch and American consumers (Pennings, Wansink, and Meulenberg 2002). In the UK, the retail sales volume of beef dropped from

617,000 tons in 1988 to 390,000 tons in 1996 after the publication of information about BSE and its connection with the Creuzfeld-Jacob disease (Yeung and Morris 2001). Sales of beef increased after price reductions, however, and the negative effects were relatively short- lived (Frewer and Miles 2001). Owing to these price reductions, which were meant to boost consumption, some income groups could now afford the consumption of beef. Confidence with respect to food safety and vulnerability to food-borne incidents also varies depending on the product category or type of food involved (Dagevos and Hansman 2003; Smith and Rietmuller 2000; Timmers and de Jonge 2004). Shelf-stable products are trusted more than meat, poultry, and dairy products, for instance (de Jonge et al. 2004a; Erasmus Food Management Instituut 2003). The results of other surveys (Trendbox 2002) show a high level of trust in products that are 'close' to nature, such as milk, cheese, and fresh vegetables compared to convenience products, ready-to-eat meals, sport and energy drinks, vitamin supplements, and baby food. Consumers may have trust in food safety in general and *simultaneously* have concerns about particular food products (Dagevos, Ophem, and Gaasbeek 2002). But what happens when trust in those who supply the product is harmed by a food safety incident? And does that affect the level of trust consumers have in the product? Finding answers to these questions was the first objective of this dissertation. Formulated as the first research question: *What is the effect of perceived different causes of food safety incidents on consumers' trust in the product and the members in the supply chain involved?*

Problem, Incident, or Crisis?

So far, we have used the term 'incident'; but what is an incident and what is the difference between a problem, an incident, and a crisis? According to the Wordsmyth dictionary, an *incident* has two meanings. The first meaning is of 'a single event', emphasizing the irregularity of the phenomenon. The second meaning is 'an event of serious consequences'. A *crisis* is defined as 'an unstable or uncertain situation that has the potential for sudden change'. A *problem* is defined both as 'a question or circumstance that involves difficulty or uncertainty' and as 'a question, puzzle'. Despite some equivalent aspects in these definitions, it seems justifiable to say that an incident can become a problem for a company and will grow into a crisis if it is not managed properly.

Riezebos (1996) provides a clear distinction between an *incident* and a *crisis*: an event is an incident when the material or immaterial attributes of a product are under discussion; it grows into a crisis when the incident receives so much negative publicity that the regular business process is disrupted in consequence. The most salient characteristic here concerns the

consequences of what has happened or might happen as a result of a decision taken in an event. Its unexpected nature, the serious threat it poses to consumers, employees, or the company itself, the need to act, and uncertainty are commonly found elements in definitions of a crisis (Covello 1995; O' Reilly 2002; Rosenthal and Pijnenburg 1991; Ten Berge 1991). What appears to be a single *problem* at the level of an individual consumer may grow into an *incident* with serious consequences for a firm, or into a *crisis* when the consequences of the event undermine the regularity of the business process. From the consumer's point of view we define a food safety incident as an unexpected negative effect of consuming a food product that may compromise consumer's health. To understand what the attitudinal and behavioral consequences of a food safety incident are is the first step in preparing an effective response. The objective of such a response by supply chain members is generally to try to 'repair' possible negative consequences of an incident, like a decrease in trust, a reduction of product or store loyalty, or the intention of negative word-of-mouth activities. The next step in our study was therefore to assess the effects of alternative responses to food safety incidents on consumers' attitudes and behavior. This was the second objective of this dissertation. Formulated as the second and third research questions:

- *What is the effect of different types of responses to food safety incidents on consumers' trust in the product and the members in the supply chain involved?*
- *What is the subsequent effect of the responses to food safety incidents on consumers' behavioral intent (re-purchase rate, store loyalty, and word-of-mouth intention)?*

1.3 Responding to Food Safety Incidents

Firms may respond in numerous ways to a food safety incident, varying from denial of any responsibility for the incident and 'stonewalling' to an unambiguous admission of responsibility and initiation of a large number of recovery activities (Dawar and Pillutla 2000; Siomkos and Kurzbard 1994; Siomkos and Shrivastava 1993). According to the crisis management literature, many firms are ill-prepared to respond adequately to a crisis, or respond ambivalently (Mitroff and Anagnos 2001; Mitroff and Pauchant 1990; Pearson and Mitroff 1993). According to Mitroff and Alpaslan (2003), between 5% and 25% of the Fortune 500 companies could be considered to be crisis prone, to take a reactive stance, to be ill-prepared to handle an unfamiliar crisis, and to be able only to handle some types of crisis

they have handled before. This was clear, for instance, in the case of the contaminated baby food produced by Nutricia in 1993 (de Raaf 2000). Severe damage to Nutricia's baby food brand resulted from a late and very defensive approach. Another example of a badly orchestrated response is the response of Perrier to the contamination of its sparkling water with benzene (Kurzbard and Siomkos 1992). Governments may also respond in much-criticized ways, as the Belgium government did during the dioxin crisis (Lok and Powell 2000), the UK government during the BSE crisis (Phillips 2000), and the Dutch government during the dioxin crises (Berenschot 1999). Also individual complaints of a consumer about a food product might be handled inadequately or a potentially larger problem behind a complaint might not be noticed. Companies might overreact to an incident or simply undertake insufficient action. Finding the right balance is a difficult task.

Several factors complicate the formulation of the right response to a food safety incident. The first factor is the increased complexity of the production, manufacturing, distribution, and retailing of food products. An increasing number of new food-processing technologies is in use and a vaster array of, often composed products are available to the consumer (Walstra and van Boekel 2006). This makes finding what caused an incident a difficult task.

The second factor is the increased distance between place and time of production and place and time of consumption. In the last 40 years, the tonnage of food shipped between nations has grown fourfold, whereas in the US food products typically travel a distance of 2,500-4,000 kilometers from the farm to the consumer's plate. This distance is, on average, 25% more than in 1980 (Halweil 2002). Also this development complicates to establish in a short period of time the real cause.

The third factor is more advanced technical knowledge of food ingredients, which is primarily due to more sophisticated research methods: ingredients that were previously perceived as harmless may now be suspect (de Gooijer 2002). Increases in the size of production in many industries in order to realize economies of scale, including their distribution schemes, have also increased the scale of possible food safety incidents: products and product deficits are more rapidly spread amongst a wider circle of consumers. Food safety incidents and their consequences are no longer restricted to a single country, nor are concerns about related issues like animal welfare and the use of environmental friendly production techniques. Worldwide sourcing and production of foodstuffs and their ingredients by retailers and manufacturers implies that a food safety incident often grows into an international problem. Consumer food habits have also changed: convenience meals,

composed of a large number of different products and even more ingredients, are substituting traditional single meal components. At the same time, consumers, consumer associations, and the public media are demanding more information faster when food safety incidents occur.

A fourth complicating factor is the technical development of the media. The Internet, mobile phones, and satellite telephones have accelerated the speed at which news can be spread, and have increased global coverage. For instance, news about dioxin in food products in Europe was reported in Australia just fourteen hours after the discovery had been made (Doeg 1995). This often urges companies to respond immediately.

The last factor is the link between firms in the supply chain, which sometimes renders the distribution of responsibilities unclear. Firms today are more closely connected with each other in chains and network structures, as in transnational buying alliances, buying worldwide. Sometimes, a product is produced under legislation[3] that differs from that in the recipient country. Sometimes, retailers are faced with farming contracts that set new rules for responsibilities. Securing the production of safe food products, therefore, is considered by the Dutch government and European authorities to be a joint responsibility of the channel members (Commission of the European Communities 2000; *Ministerie van Landbouw* 2001; *Ministerie van Landbouw* 2000) In sum, more demanding consumers, a greater distance between production and consumption, the interlocking business structure between actors, and, finally, the government view that food safety is the shared responsibility of channel members make it harder for businesses to produce the right response in the event of a food safety incident.

[3] In May 2003, the Dutch importer of seedless grapes had to recall products because of too-high levels of residues. The use of this residue was permitted in India, the country of origin, but not in the Netherlands. The Dutch control covered only the maximum level of the allowed residues but did not control for other residues.

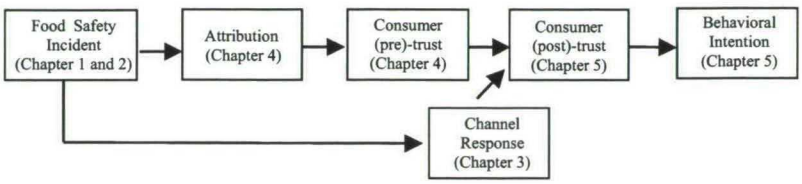
1.4 The Process of Attributing Blame and Responsibility for Food Safety Incidents

In the event of an unexpected outcome like a product failure, consumers tend to want to attribute responsibility to someone (Folkes 1998; Folkes 1990; Folkes 1984; Folkes, Koletsky, and Graham 1987; Folkes and Kotsos 1986; Weiner 2000): they try to find out why the product failed and wish to determine the possible causes. The same applies to incidents that occur. Consumers want to *attribute* the reason for the unexpected outcome to something or someone. According to Folkes (1988, p.548), attribution research is 'concerned with all aspects of causal inferences: how people arrive at causal inferences, what sort of inferences they make, and what the consequences of these inferences are.' Or, as stated by Kelley (1973, p.107), 'attribution theory is a theory about how people make causal explanations, about how they answer questions beginning with "why?"' Originating in common-sense psychology or naïve epistemology and with a strong application in the domain of achievement, attribution theory was applied to product and service failures in particular by Folkes (1990; 1984; Folkes, Koletsky, and Graham 1987; Folkes and Kotsos 1986). Its basic principle is that people search for explanations and causes of why things happen, why people or organizations behave or act in a certain way, and why products or services fail. The application of attribution theory is, therefore, useful in analyzing how people draw conclusions when they are involved in a food safety incident.

A food safety incident not only influences consumer attitudes and behavior – causing product or brand switching, complaining, negative word-of-mouth communication, or inertia – but may also lead channel members to respond. The responses of channel members to an incident may vary from reimbursing the purchase price to an *individual* customer who returns to the supermarket and complains about a foreign object found in a product, to a *massive* product recall in the case of large quantities of contaminated product. This process, in turn, may affect the attitudes of consumers after being confronted with the incident. Figure 1.1 provides an overview of this process. The figure also shows the chapters in which we discuss the separate steps in the process.

FIGURE 1.1

THE ATTRIBUTION PROCESS



In the remaining part of this section we explain the steps in the attribution process.

Food Safety Incidents

A food safety incident can occur at any point in the food supply chain: in factories, supermarkets, restaurants, or the consumer's kitchen; in short, at any point in the process from farm to fork. The most common causes (Food Marketing Institute 2004) are mishandling of products, poor refrigeration of foods, improper cooking, cross contamination of cooked foods with raw foods, unclean utensils or serving plates, poor hygiene by food handlers, and time or temperature abuse. Experts state that a large number of food safety incidents occur at consumers' homes (Redmond and Griffith 2003; Walstra and van Boekel 2006). The causes of the incidents in this category may be related to undetected product defects, personal factors (for instance, allergic reactions or food intolerance, mistakes during transport and storage (like too-high temperatures during transport from the supermarket to the consumer's home), or mistakes made during preparation (ignoring cooking instructions). According to the US Centers for Disease Control and Prevention (Verbeke, Scholderer, and Frewer 2006), mishandling of food products by consumers at home accounted for 20% of the outbreak of food-borne illnesses. Van Duynhoven (2004) came to more or less the same figure: based on mandatory reporting of food-related infections by doctors to the National Inspection, she estimates that 16% of the reported incidents were caused at home . It is expected, however, that private homes account for more outbreaks than reported (Beumer et al. 1998; Redmond and Griffith 2003; Walstra and van Boekel 2006), as not all illnesses are reported or expected to be caused by food. Gorris (2002) estimates that one out of every three people suffers from a food-borne illness every year and 20 people per million may die from such an illness. De Wit (2003) estimates that 2.2 million cases of food-borne diseases occur in the Netherlands each year, with 20-200 of these resulting in death. The primary sources of food-borne diseases in the Netherlands are restaurants (57%), and incidents at private homes

are the second source (23%). Only 0.9% of food safety diseases are caused by incidents during production, transport, or distribution. These externally caused incidents receive much media attention, however, owing to the often considerable size of the incidents and the sometimes unexpected causes.

Attribution

A food safety incident starts an attribution process by the consumer who was confronted with the incident. Negative experiences, unexpected outcomes, frustration due to failure, and expectancy disconfirmation generally promote the process of attributional search (Oliver 1997; Wong and Weiner 1981).

In this attribution process three underlying causal properties or dimensions for classifying causes are distinguished: locus of causality, controllability, and stability. *Locus of causality* (also abbreviated as locus) refers to the degree to which the outcome or the incident was caused (located) by the person himself or can be attributed to him. What event triggered the food safety incident? Did the manufacturer or retailer or consumer cause it? For instance, a retailer can generally not be blamed if a consumer does not like the regular taste of a product. But if the taste is bad owing to the poor quality of the product, the burden might belong with the retailer or manufacturer as the product may have been produced using the wrong ingredients or it may not have been properly stored. However, the answer to the question where the locus for a failure or an incident is located, and who is to blame, is mostly subjective, partly as a result of, for instance, a difference in available information. Causes are not always directly observable, and, therefore, the perception of causality is 'an ascription imposed by the perceiver' (Weiner 1992 p. 230). *Controllability* refers to whether the cause is volitional or not. If, for instance, slivers of glass in a bottle of beer injure a consumer, the consumer's opinion will be that the manufacturer failed to control his products. The locus of causality and controllability often appear not to be independent, and seem to interact frequently (Oliver 1997). For instance, Curren and Folkes (1987) found strong interaction effects between locus and controllability in consumers' desires to communicate negatively (complaining, negative word-of-mouth). The control dimension also has a major effect on the emotional responses of consumers (Folkes 1990; Folkes 1984; Folkes 1988; Folkes, Koletsky, and Graham 1987). In her study of product failure attributions, Folkes (1984) found that seller-controlled causes increased anger and the desire for revenge towards the firm that sold the product. On the other hand, positive reactions from consumers (complimenting a firm, recommending the firm to friends) were found by Curren and Folkes (1987) to be

significantly stronger when the firm controlled the causes. Additional factors related to controllability are suggested to influence the outcome of an attribution process. Oliver (1997 p. 273), referring to results from Anderson (1983), proposed that additional dimensions like changeability ('whether the actor can change the forces that affect the outcome') and intentionality ('whether the actor intended the outcome to occur') were 'highly related to the original controllability dimension and could be considered similar in effect'. Several of these dimensions were strongly correlated. Controllability seems to be the most important dimension in legal cases where the consequences of a product failure are concerned. Folkes (1990) refers in that respect to cases in which product liability were judged (Sears, Upjohn Laboratories, Coca Cola) and in particular to the case of Beechnut. In this case, diluted apple juice was used in a product for babies. The executives of Milnot (Beechnut) were accused of not having properly controlled the suspiciously low price of the apple juice that was supplied and were sent to prison. *Stability* refers to whether the cause of the outcome is temporary or permanent. It refers to expectations about the future: whether or not the event will happen again. For instance, not liking the taste of a product is most often a stable (and dispositional) personal cause. Foreign objects in a packet of dried soup, on the other hand, are perceived as an unstable (and external) cause.

One outcome of the attribution process is an assessment of *blame* and *responsibility.* The question is whether there is a difference between the concept of *blame* and the concept of *responsibility*. Oliver (1997), for instance, used the terms blame and responsibility interchangeably. Lazarus (1991), however, distinguished between them, stating (p. 148), 'Although words can be used in may ways, blame most often implies resentment, which is much more an appraisal than a cold cognition about who is responsible for an outcome'. Lazarus (1991) also used the term *accountability,* which includes both responsibility for the outcome of an event and the controllability of the outcome. In his view, if controllability rests with the actor, accountability becomes blame. Fishbein and Ajzen (1973) raised a warning with respect to the term 'responsibility'. In their view (p.149), responsibility can 'neither be described as a disposition of a person or as a property of an object', and the authors suggest viewing responsibility as a moral judgment.

Both Fishbein and Azjen (1973) and Fincham and Jaspars (1980) refer to the different levels of blame or credit for an act identified by Heider (1958): blame or credit for an act increases from *association, commission, foreseeability, and intentionality* to *justification.* Shaver (1985) argues that responsibility attributed to a person (or organization) shows a linear progression from association to intentionality, and decreases where the level of

responsibility in case of justification equals the level of foreseeability. We examined how responsibility and blame are attributed under different conditions.

Interestingly, in most of the surveys in which the attribution process in the case of a product or service failure was examined, a dichotomy with respect to the locus dimension was used: the locus was either internal (the consumer) or external (the seller). Often the seller (retailer or manufacturer) was not further defined. Only some researchers (Folkes and Kotsos 1986; O' Malley Jr. 1996; Su and Tippens 1998) specifically examined the effects on multiple parties, or differentiated the external locus. O'Malley (1996) suggested use of a conceptual framework to examine the consumer's attribution process when a number of channel members were involved, but did not examine the process. Sue and Tippens (1998) manipulated the locus in their study. They found respondents (in their survey, students) made a distinction regarding who was to blame for the disappointing appearance of athletic shoes. Severe problems (a deep scratch in the leather) were often attributed to the retailer, as it was hypothesized that this damage could have occurred in the shop as a result of frequent trials by customers. Minor problems (a frayed shoelace) were attributed to the manufacturer. The consumer was blamed if the damage appeared on low-priced shoes from an unknown brand. Failure to measure the attribution process, however, as well as possible confounding of problem severity and problem type, limited the generalizabiliy of the study. The reality of blame and responsibility in the case of a food safety incident is often complex. A process or product failure can occur at some point in the food supply chain, or a defect can remain unnoticed in the next link of the supply chain. Who is to be held responsible? Only those who caused the incident? A similar technical incident may develop at a different link in the supply chain. Is responsibility and blame attributed then in the same way? And what are the consequences in terms of consumer behavior? We extended the external locus and simulated food safety incidents caused either by a supermarket or by a producer, in order to examine if this would lead to a different outcome.

Trust

Trust is the lubricant in relationships: without trust, everyday life would barely be possible (Dasgupta 1988; Schnabel 1998; Worchel 1979). In the selection process of food products, trust in food brands and food stores acts as the antithesis of risk: people select products on a trust-based assumption. If trust is violated, however, it is difficult and time-consuming to regain it. It takes a lot of time to build trust, but it can be destroyed in less than no time (Nooteboom 2002). Not only trust in a product or a brand is important, but also trust in those

who supply the product. There is strong and convincing evidence that trust is an important antecedent in the process of cooperation between supply chain members, and also in loyalty to products, brands, and stores. We use the term *'pre-trust'* in our scheme (see Figure 1.1) as an abbreviation of 'pre-response trust' to indicate the level of trust consumers may express after being confronted with an food incident but before experiencing the response of the supply chain members. In the same way, *'post-trust'* refers to the expressed level of consumer trust after the incident and after the response of the channel members.

Channel Response

Channel members respond to a food safety incident either voluntarily as part of a recovery program to restore trust or reputation, or after being forced by the authorities to do so to minimize health risk (e.g., to recall products). Seriousness of the incident and size of the incident are two important parameters that define the set of measures that have to be initiated. Since individual consumer complaints might be signals of a more threatening event, channel response is founded on understanding of the effects of complaint handling and crisis management. The perception of fair treatment of the complainer following the final outcome of the complaint-handling procedure, the fairness of the procedure itself, and the behavior of those who handle the complaint are important determinants in consumers' attitudes to the firm(s) and future behavior (Blodgett, Hill, and Tax 1997; Maxhamm and Netemeyer 2002; Tax, Brown, and Chandrashekaran 1998). In the crisis management literature, product recalls as precautionary measures to limit (further) negative effects (Abbott 1991; Smith, Thomas, and Quelch 2000), expressing feelings of regret and moral responsibility (Fitzpatrick and Rubin 1995; Martinelli and Briggs 1998), and open communication about an incident (Coombs 1995; Coombs and Holladay 1996; Covello 1995; Doeg 1995; Grant and Powell 1999; Lukaszewski 1997; Mallozi 1994; O' Reilly 2002) are seen as important attributes of a crisis approach. We examined the effects of different types of responses to food safety incidents on consumers' trust and behavioral intentions.

Behavioral Intention

Individual reactions of consumers to dissatisfactory experiences with products or service incidents failure may range (Richins 1983) from doing nothing at all (inertia) to switching brands or stores, complaining to the seller or a third party, telling others about the negative experience (negative word-of-mouth), dealing with the retailer (Mowen and Minor 1995), complete boycotts, or creating alternative organizations to provide consumers with the

particular product or service (Herrmann 1993). The response of the channel members to the incident influences consumers' attitudes and, ultimately, consumers' behavior. There is strong evidence (Smith and Bolton 2002; Smith and Bolton 1998; Smith, Bolton, and Wagner 1999) that the level of satisfaction with a service recovery influences post-purchase behavior. We examined the effects of consumers' trust on post-purchase intention and on word-of-mouth activities.

1.5 Theoretical Relevance

Substantial empirical findings are available about the reactions of consumers to product failures (Folkes 1984; Folkes 1988; Folkes and Kotsos 1986), about complaint behavior of consumers (Andreason 1984; Singh 1988; Singh and Wilkes 1996; Stephens and Gwinner 1998; Tarp 1999; Tarp 1997), and about service failures and service recovery encounters (Smith and Bolton 2002; Smith and Bolton 1998; Smith, Bolton, and Wagner 1999). However, application in the domain of food safety is lacking; moreover, in almost all of these studies it was assumed that the failure could be attributed to only one actor, either the consumer involved or the supplier. Recent food safety incidents have shown that responsibility is sometimes intertwined between supply chain members and not so easy to unravel. We intended to fill this gap by differentiating the external locus to two parties: a food retailer (supermarket) and a producer.

An overwhelming body of research is also available on *trust* that illuminates different aspects of trust and the effects of trust on *relations* (Brom 2000; Das and Teng 1998; Deutsch 1958; Dirks and Ferrin 2001; Doney and Cannon 1997; Gambetta 1988; Geyskens 1998; Lewicki and Bunker 1995; Morgan and Hunt 1994; Nooteboom 2002; Ring and Ven 1994; Sztompka 1999; Worchel 1979) and, to a lesser extend, on *products* and *brands* (Chaudhuri and Holbrook 2001; Fournier 1998; Lau and Lee 1999). The literature on risk as the counterpart of trust is also significant and growing owing to societal concern about the application of new food technologies, the development of new types of food products, criticism of governmental bodies on how firms or industries handle food safety, and concern for animal welfare (European Commission 2000; Fife-Schaw and Rowe 1996; Frewer et al. 1996; Frewer and Miles 2001; Frewer, Shepherd, and Sparks 1994a; Frewer, Shepherd, and Sparks 1994b; Gorris 2002; Miles et al. 2004; Powell 1996; Slovic 1993; Slovic 1987; Slovic

1992; Slovic, Fischhoff, and Ligtenstein 1982; Sparks and Shepherd 1994). The aim of our study was to examine the effects of food safety incidents, under a variety of conditions, on consumers' trust in those who supply the product and in the product itself.

Recommendations on how to respond to a food safety incident are mainly based on historical and managerial 'lessons learned' and lack in general a solid scientific base, despite attempts (Coombs 1998; Coombs 2000; Coombs and Holladay 1996; Dawar and Pillutla 2000; Grant and Powell 1999) to improve the level of sophistication. Understanding of the relative importance of individual response attributes (for instance, the weight of openness about an incident relative to compensating a consumer) is often missing. As a consequence, generic types of response strategies are chosen. It was our aim in this study to provide insights into the effects of different combinations of response attributes and their effects on attitude and behavior.

1.6 Practical Relevance

Several reasons can be identified why a better understanding of the attitudes and behavior of consumers towards food safety incidents, as well as the responses of members in the supply chain to these incidents, is beneficial.

One reason is the significant number of food safety incidents and the costs involved. The cost estimate for the Netherlands, including loss of productivity due to absence, is estimated at 1.8 billion euros (de Wit 2003). A better understanding of consumers' attitudes to food safety incidents and their subsequent behavior, even if incidents arise as a result of consumers mishandling products at home or not following the cooking or storage instructions, may be helpful in developing programs to lower the number of incidents or the costs involved.

A second reason is that inappropriate responses may significantly damage the position or loyalty a manufacturer or retailer has built with his or her customers. This means that, in order to formulate an effective response, companies should at least have knowledge of the behavior of consumers and of the effects of recovery programs in case of food safety incidents. The links between the channel members in the supply chain highlight the necessity of developing normative models for cooperation in prevention programs and recovery programs, in order to prevent collateral damage. Unfortunately, the results of studies of the

effects of channel member responses to food safety incidents and the reactions of consumers to date are limited. As 't Hart (1998) concluded, there is a lack of empirical evidence supporting the improvement of crisis management practice. Most strategy recommendations are simple, easy-to-recognize, and practical messages presented as 'golden rules', but are often based on dramatic incidents, and are sometimes based on the experiences of the consultant involved. Researchers can help to improve the *effectiveness* of crisis management by analyzing and comparing crises. We defined effectiveness as having the intended or expected effect on consumers' attitudes and behavioral intentions. We excluded possible effects on cost or organizational efficiency.

1.7 Study 1: Consumer Experiences with Food Safety Incidents

We started our exploration by examining how many people actually experienced a food safety incident over a period of a year and how they coped with such incidents. We initiated, therefore, a descriptive study amongst households in the Netherlands.

Consumers may experience food safety incidents in their day-to-day lives. The Dutch Food and Product Agency registered (*Voedsel en Waren Authoriteit 2006*) a total of 6,432 complaints in 2004 that led to further investigations by the agency. A total of 239 complaints were found to be legitimate. Major complaints were food poisoning (749 complaints), deviations in taste and smell (652 complaints), insufficient hygiene within firms (599 complaints), and foreign objects in products (470 complaints). There is strong evidence (Beumer et al. 1998; Rovira et al. 2006; van Duynhoven 2004; van Duynhoven et al. 2002), however, that these complaints only partially reflect the number of consumers confronted with food safety incidents, as not all consumers report incidents. In order to (a) estimate how many consumers experienced a food safety incident over the previous year and (b) understand how consumers cope with such incidents, we initiated a descriptive study amongst households in the Netherlands.

1.7.1 Method

Procedure

We used the principles of the critical incident technique (Flanagan 1954) to investigate how many households experienced a food safety incident, what kind of food safety incident it was,

what the consequences were, how they attributed responsibility for the incident, and what kind of action they considered and finally took. As Zeithaml and Bitner (2000) stated, the critical incident technique is a powerful and vivid research technique to elicit customer experiences and can address different research objectives. The technique is frequently used to examine satisfying and dissatisfying service encounters (see, for instance, a recent application by Bougie (2005) and is, therefore, also useful in exploring experiences with food safety incidents. Though direct observations are preferred, making use of recalled incidents is an accepted procedure (Flanagan 1954).

Participants

The Center-Data panel (2,283 households) was used to examine in the first round how many persons had experienced a food safety incident over the previous year. Six hundred and sixty (29%) households reported having had an experience with a food safety incident. In the second round, a sub-sample of 203 households was invited to describe in an open-ended format the food safety incident they had experienced most recently and to answer additional questions. The average age of the respondents in the first round was 47, ranging from 16 to 91; 47% were women and 53% man. The average age of the respondents in the second round was 48, ranging from 16 to 84; 45% were women and 55% men.

Questionnaire

In the first round, all panel members were requested to report which of a list of five different types of food safety incident they might have experienced over the previous year: (1) food-borne illness[4] after eating out-of-home; (2) presence of a foreign body in a food product; (3) purchasing a food product that was contaminated or tainted; (4) consuming a food product that evoked an allergic or intolerance reaction; (5) food-borne illness after eating or preparing food at home An open-ended format allowed for mention of incidents not listed. The first three categories were equivalent to the categories used by the Dutch Food and Product Authority. Food technologists (Luning, Devlieghere, and Verhé 2006) use distinct categories like food safety incidents caused by (micro)biological hazards (bacteria, moulds, parasites, virus, prions), chemical hazards (e.g., residues, contaminants, endogenous substances), and

[4] Technically, a food *infection* is caused by living pathogens and food *poisoning* is caused by toxic compounds (Knura et al., 2006) but 'laymen' use the terms interchangeably. Experts use the term 'food-borne illness' or 'food-borne disease' when referring to 'a disease of an infectious or toxic nature caused by or thought to be caused by the consumption of food or water' (WHO definition in: Redmond and Griffith, 2003).

physical hazards (non-radioactive physical contamination and radioactive contamination). Microbiological contamination is perceived by experts as posing the greatest threat to food safety, whereas the presence of foreign bodies (e.g., glass, wood, stones, metals) in food products is of major concern to producers. Twenty-five percent of consumer complaints are reported (Aladjadjiyan 2006) to be related to physical contaminations. The fourth category of primary sensitivity to food ingredients (food allergy and food intolerance) was added as the incidence of food allergy and food intolerance is a substantial societal problem. According to Savelkoul and Wichers (2006), 2-4 percent of consumers, suffer from some form of food allergy or intolerance. The increasing complexity of food production and food formulation makes it difficult for consumers to recognize, partially owing to ambiguous food labeling, whether or not a food product contains an offending allergen (Meulenaer 2006).

In the second round, the participants were first asked to describe in their own words, in an open format, the most recent incident they had experienced, to depict what precisely happened, what in their opinion caused the incident, and how they reacted to the incident. The next question concerned the perceived seriousness of the incident, rated on a 7-point scale, anchored by 'not at all serious' (1) and 'very serious' (7). The following question referred to actions considered. A list of possible actions was given, such as avoiding eating out-of-home, brand or store switching, and complaining. An open format was used to describe other actions. In the next question, the participants were asked to rate on a 7-point scale, anchored by 'not at all responsible' (1) and 'very much responsible' (7) to what extent they felt the supermarket, the producer, the restaurant, or somebody else was responsible for the incident. The participants were requested to provide reasons for their answers. Participants were then asked if their trust in the supermarket, the producer, the restaurant, or whoever was held responsible had diminished. The 7-point scale used was anchored by 'not at all reduced (1) and 'very much reduced' (7). Here, also, the participants gave reasons for their ratings. In the last question, participants were asked in a similar way to rate to what extent the incident could have been prevented and briefly to explain why. The questionnaire is provided in Appendix 1 together with a description of the sample (Appendix 2).

Data analysis

The incidents reported (described in an open-ended format) were analyzed with the aim of listing the consequences of the incidents and identifying the action taken by the respondents. SPSS version 11.5 was used to analyze the answers to the closed questions.

1.7.2 Results

Number and type of incidents experienced

The six hundred and sixty households reported a total of 855 incidents: an average of 1.3 incidents per household. Buying a product that turned out to be contaminated or tainted was the largest category; 377 incidents were reported. Finding a foreign body in a food product was reported 202 times and food-borne illness after eating out-of-home was reported 113 times. An allergic or intolerance reaction after consuming a product seems to occur frequently; such incidents were reported 99 times. Food-borne illness after eating or preparing food at home was observed less frequently (39 incidents). The category of 'others' contained specific incidents like a dead mouse in a bottle of milk, products that had passed the 'best before' date, ice that had been defrosted and frozen again, and finding a caterpillar in vegetables (twice).

A sub-sample of households was randomly selected in each of the four main categories. Incidents caused at home were not included owing to the reported low incident level and the expected biased outcomes.[5] We report the outcomes per category.

Food-borne Illness after Eating Out-of-Home

Fifty-three respondents were randomly selected from the 113 panel members who said they had experienced this type of incident to answer additional questions. Eleven percent of the incidents had happened one week to one month previously, 24% a month to half a year previously, and 65% half a year to a year previously. Food-borne illness after eating out-of-home was rated significantly (M=4.5, p<.05) higher with respect to seriousness relative to the other categories of food safety incidents (see Table 1.1). Analysis of the incidents showed that 38% of the incidents had happened abroad, mainly during a holiday, and 45% of the incidents had occurred in the Netherlands. The remaining incidents could not be classified.

Almost all incidents concerned an unpleasant experience during or (shortly) after eating in a restaurant. Incidents after eating a snack along the roadside, or picking up a pizza or Chinese food at a take-away, were occasionally reported. Mostly symptoms of a food infection like diarrhea (40%), illness and fever (34%), and vomiting (23%) were reported. The actions most strongly considered (see Table 1.2) were the intention to eat in a different restaurant next time (M=3.7; $S.D.$=2.5) and to complain to the restaurant (M=3.5; $S.D.$=2.5). Responsibility for the incident attributed to the restaurant (M=5.4; $S.D.$=2.3) was

[5] We expected underreporting based on (a) the inability to diagnose (b) possible unwillingness to admit or externalization of causes.

significantly different ($p<.001$) from responsibility attributed to other parties. Arguments that led to this were that a restaurant should control what it prepares; a restaurant should control the ingredients it buys; a restaurant should be alert to what can go wrong; a restaurant should respect hygiene regulations. Those who experienced such incidents were convinced (M=4.9; $S.D.=2.5$) the restaurant could have avoided the negative outcome. Respondents based this opinion on arguments such as that restaurants need to take sufficient precautionary measures; they should only use fresh ingredients; they should work according to hygiene codes; they should not take risks. Fifty-three percent of the respondents stated that their trust in the restaurant was strongly/very strongly reduced (M=4.5; $S.D.=2.6$) by the incidents. The arguments used were the sickness; non-compliance with hygiene regulations; fear of repetition; negative reaction of the restaurant to the incident; and surprise.

Interestingly, based on their descriptions of the incidents, approximately 70% of the respondents did not initiate any action. Thirty percent either voiced their complaints to the management of the restaurant, hotel, or tour operator, or decided not to eat in the restaurant, hotel, or cafeteria again. Reasons given for not initiating any actions included the belief that recovery from a food-borne illness would occur spontaneously; food-borne illness is a natural risk on holiday; and some doubts about other reasons (physical condition).

TABLE 1.1

AVERAGE RATINGS OF REPORTED FOOD SAFETY INCIDENTS

	Food-borne illness after eating out-of-home (N= 53)	Foreign body in food product (N= 53)	Food product bought was tainted or contaminated (N=49)	Food product caused allergic or intolerance reaction (N= 48)
Seriousness[1]	4.5	3.9	3.9	3.8
Responsiblity for the incident [2]				
o Shop/supermarket/restaurant	5.4	2.4	4.5	2.0
o Producer of the product	2.5	5.0	3.8	1.8
o Myself	2.0	1.1	2.9	4.0
o Others	2.2	1.4	1.3	1.7
Reduced my trust in [3]				
o Shop/supermarket/restaurant	4.5	1.4	2.9	1.7
o Producer of the product	2.2	2.4	2.4	1.4
o Others	1.5	1.1	1.2	1.2
Could have been avoided by [4]				
o Shop/supermarket/restaurant	4.9	2.1	4.5	1.8
o Producer of the product	2.2	4.7	3.5	1.7
o Myself	1.9	1.3	3.1	3.9
o Others	1.7	1.4	1.6	1.6

[1] 1 = not at all serious; 7 = very serious
[2] 1 = not at all responsible; 7 = very strongly responsible
[3] 1 = not at all reduced; 7 = very strongly reduced
[4] 1 = could not have been avoided at all; 7 = could very clearly have been avoided

TABLE 1.2

AVERAGE RATINGS AND FREQUENCY OF CONSIDERED ACTIONS

	Food-borne illness after eating out-of-home (N= 53)	Foreign body in food product (N= 53)	Food product bought was tainted or contaminated (N=49)	Food product caused allergic or intolerance reaction (N= 48)
Considered actions [1]				
o No longer eating out of home	1.6 (6)	1.1 (-)	1.2 (4)	1.6 (4)
o Eating in a different restaurant	3.7 (41)	1.3 (2)	1.3 (4)	1.7 (8)
o No longer purchasing the product	n.a	2.0 (11)	2.7 (22)	3.5 (38)
o Purchasing another brand	n.a	2.0 (9)	2.8 (25)	2.2 (19)
o Purchasing in another store	n.a	1.5 (4)	2.7 (18)	1.4 (4)
o Complaining to the restaurant	3.5 (32)	2.1 (11)	1.4 (4)	1.5 (6)
o Complaining to the store	n.a	1.8 (8)	3.8 (41)	1.1 (-)
o Complaining to the producer	n.a	2.8 (23)	1.6 (8)	1.5 (6)
o Complaining to family, relatives	1.8 (7)	1.9 (8)	1.9 (8)	1.6 (6)
o Complaining to third parties	1.5 (6)	1.6 (4)	1.4 (6)	1.2 (2)
o No action at all	2.6(17)	2.8 (28)	2.6 (23)	2.3 (21)
o Others	1.1 (2)	1.1 (2)	1.2 (2)	1.8 (3)

[1] 1= not considered at all; 7= very strongly considered
Frequency (top-two box) between ( ) as percentage of all respondents

Foreign Body in a Food Product

Fifty-three households were randomly selected from the 202 households that reported such incidents. Fifteen percent of the incidents had happened one week to one month previously, 19% a month to half a year previously, and 66% half year to a year previously. Most of the incidents were related to food products consumed at home (87%). The type of foreign object found was quite diverse and ranged from hair in products to a capsule of medicine found in mineral water. Twelve incidents involved stones or pieces of stone in loaves of bread, 6 incidents referred to pieces of glass in products, and 5 incidents had to do with pieces of glass in other products. The incidents out-of-home concerned a staple in mushroom sauce, buckshot in pheasant, a piece of wood in a pancake, a piece of metal in Chinese food, a fishhook in a fish dish, a piece of glass in a salad, and a piece of metal in a main dish.

The producer of the product was clearly held responsible (M=5.00; $S.D.$=2.7) by the respondents (Table 1.1). The main argument was that a producer is obligated to control the ingredients and the production process, and to safeguard consumers from injury or illness resulting from consuming the product. The respondents felt that such incidents also could have been avoided (M=4.7; $S.D$=2.4), for reasons such as the following: it should be possible to control the processes better (mentioned 12 times); it should be possible to pay more

attention to the production process (mentioned 6 times); it is necessary to wash vegetables to remove stones; it is necessary to destroy products in case of a disruption in production; it is necessary to install better detection systems or better production equipment. The considered actions (see Table 1.2) did not show a specific pattern. A substantial number of respondents, approximately 58%, finally decided not to initiate any further action other than to throw away the product. Reasons given were the following: the cause of the incident was not completely clear; other experiences with the product, brand, or actor involved were positive; it appeared to be a coincidence of causes (like a broken molar due to the combination of a stone in a product and a weak set of teeth); the incident was not worth the trouble. Approximately 42% voiced a complaint to the producer, the store, or the restaurant. The incidents did not result in a substantial reduction of the level of trust of consumers in the producer, store, supermarket, restaurant, or other actors. A substantial number of respondents remarked that their level of trust was not reduced as such incidents are part of life.

Tainted or Contaminated Food Products

A total of 49 households were randomly selected out of the 377 households which reported having had tainted or contaminated food products. Twenty seven percent of the incidents happened one week to one month previously, 38% a month to half a year previously, and 35% half year to a year previously. Relative to the other types of incidents, the proportion of recent incidents (one week to one month previously) was larger. The incidents covered a range of 14 different product groups, and included tainted dairy products (reported 7 times), rancid fish (reported 5 times), and mold on bread (reported 3 times) and cheese (reported 7 times). With only one exception, all incidents concerned products for home consumption. Responsibility for the contaminated or tainted product was attributed to both the supermarket (M=4.5; $S.D.$=2.7) and the producer of the product (M=3.8; $S.D.$=2.7); no significance difference (p>.05) was observed between these two mean values. Twenty percent of the respondents considered themselves strongly or very strongly responsible, arguing that they should have been more attentive to quality cues when shopping. Arguments in support of attributing responsibility to the producer dealt mainly with the expected lack of control of products and processes, and the opinion that those who produce and sell products are also fully responsible for these products. In that respect, respondents stated that the supermarket should continuously control the freshness of the products. This belief about the effectiveness of control (mentioned 17 times), carefulness, attentiveness, supervision, and registration of date and time of production led the respondents to think that the incident could have been

avoided primarily by the supermarket (M=4.5; $S.D.$=2.5), and less by the producer (M=3.5; $S.D.$=2.5) or the consumers themselves (M=3.1; $S.D.$ =2.5). The difference in mean values between supermarket and producer was significant ($p<.05$) as was the difference between supermarket and consumer ($p<.01$); the difference between producer and consumer was insignificant. Complaining to the store was considered strongly to very strongly by 41% of the respondents; the mean value for this of 3.8 ($S.D.=2.6$) was significantly different ($p<.05$) from those of all other considered actions.

Approximately 65% of the respondents finally did not take any action and simply threw the product away. Reasons given were mainly that it was not worth the trouble and that such things can happen; thirty-five percent of the respondents returned with the product to the supermarket to complain. Trust in the producer and the supermarket was only marginally affected; consumers who stated that their trust in the supermarket was affected justified this with arguments such as that there is no guarantee that this will not happen again; it was a really bad experience; and such incidents have happened before.

Food Product caused Allergic or Intolerance Reaction

As with the previous groups, we randomly selected 48 households out of the group of 99 households which reported the incident, for further questioning. Eight percent of the incidents occurred less than a week previously, 17% one week to one month previously, 35% a month to half a year previously, and 40% half a year to a year previously. The reported physical consequences of these incidents were swollen face, throat, or tongue, small bulges, skin rash, breathlessness, itch, and running eyes. The consumers held themselves mainly responsible (M=4.0; $S.D.$=2.7) and were of the opinion that the incident could have been avoided by them (M=3.9; $S.D.$=2.8). Reasons given were the following: I knowingly ate the food; I prepared the meal myself; I need to pay more attention to the allergy. Respondents who externalized the responsibility for the incident used arguments like the following: insufficient labeling of products; restaurant was aware of the allergy and could have warned me; change in recipe should have been announced; the products contained too many additives. As a consequence of consumers blaming themselves, the incidents were not found to have an effect on trust in the suppliers. Interestingly, however, such an incident seems to stimulate consumers not to buy the product again. Of the actions considered, 'no longer purchasing the product' was rated (M=3.5; $S.D.$=2.8) significantly higher ($p<.05$) than the other actions, except 'eating in a different restaurant', 'purchasing a different brand', and 'complaining to the restaurant'.

Finally, only one consumer complained about insufficient warnings to the supermarket; no other consumer took further action.

Food-borne illness after eating or preparing food at home

As stated above, the first round showed that only 39 households, which is less than 2% of the 2,283 households included in the sample, reported a food-borne illness after eating or preparing food at home. Some of the causes inferred by the respondents referred to eating leftovers from some days previously, heating up products, and keeping products too long in a warm car. The number of reported incidents is far below what experts (Beumer et al. 1998; van Duynhoven et al. 2002; Verbeke, Scholderer and Frewer 2006) think is caused in reality by food-borne incidents in private homes. Redmond and Griffith (2003), in their review of 88 consumer food safety studies, argue there is substantial evidence that such incidents are underreported: (1) the level of microbiological contamination in the kitchen environment; fecal contamination and contamination with coliforms were suggested to be even higher than in the bathroom; (2) the almost daily use of fresh meat in kitchens and the subsequent potential for food infection; (3) observed (via video cameras) improper handling of food products; (4) inadequate knowledge of food safety rules.

1.7.3 Discussion

Our first conclusion is that the number of households which experienced a food safety incident seems to be significantly greater than the number of households that actually complain to authorities like the Dutch Food and Product Association (VWA). When we recalculated the number of reported food safety incidents to number of incidents per 1000 households, we found 49 cases of food-borne illness after eating out-of home,[6] 165 cases of tainted or contaminated food products, 88 cases of a foreign body in a food product, and 43 cases of food allergy or food intolerance: in total, 346 food safety incidents per 1,000 households. Extrapolated to the 7 million Dutch households,[7] this would mean 2.4 million food safety incidents a year. This figure must be related to the number of meals consumed in order to put this figure in perspective. Expressed as a percentage of the number of meal moments,[8] a food safety incident occurs in 0.03% of all household meal moments; this excludes food safety incidents caused by consumers themselves. Our estimation does not

[6] For example, 113 food poisoning incidents were reported by 2,283 households, which equals 49 incidents per 1,000 households.
[7] CBS Stateline; number of private households per January 1, 2005.
[8] We calculated that 7 million households, 365 days, and 3 meals a day results in 7,665 billion meals.

seem to be far from the number of 2.2 million cases of food-borne *diseases* a year estimated by de Wit (2003). De Wit's (2003) estimate is limited to food safety incidents that resulted in illness, whereas our reported food safety incidents did not necessarily result in illness. The same holds for comparison of our estimation with the estimate made by van Duynhoven et al. (2002) , who expect that between 300,000 and 700,000 cases of gastroenteritis (vomiting and diarrhea) a year are caused by contaminated food. Our estimation, limited to the category of incidents caused by tainted and contaminated food products, amounts to approximately 1.1 million cases, but gastroenteritis was not reported in all cases.

Our second conclusion is that different technical causes of incidents evoked different behavior. Food poisoning after having eaten out-of-home was not only considered more serious than the other types of food safety incidents, but also showed relatively clear effects, like a reduced level of trust in those who supplied the food, and the intention to complain and to choose a different restaurant in the future. Finding a foreign object in a food product, on the other hand, did not provoke strong reactions; despite attributing responsibility for the incident to the producer, the consumers involved did not consider specific actions and simply threw the product away. People seem to be of the opinion that incidents like this can happen. Responsibility for a tainted or contaminated product, the third category, was attributed to the producer and the supermarket; consumers hold the opinion producer and supermarket together can avoid such incidents. Interestingly, if a food product causes an allergic reaction, consumers see themselves as being primarily responsible. Such incidents cause consumers to consider selecting a different product next time.

In general, consumers considered taking different actions against the actor who - in their opinion - caused the incident, but in the end only a minority undertook action, for instance, by complaining. This seems to be in line with findings from the complaint literature that, in particular for frequently used products, consumers do not undertake any kind of action if they experience a product failure (Alsbury and Jay 2002; Andreasen and Best 1977; Stephens and Gwinner 1998; Tarp 1997). It appears that consumers sometimes don't find it worth the trouble, are not completely sure about the cause, or are simply on holidays abroad.

1.8 Objective and Outline of this Dissertation

The objective of this dissertation was twofold: the first objective was to contribute to an understanding of consumers' attitudes and behavior when confronted with a food safety incident. We investigated how their process of attributing responsibility develops and what the consequences are for their attitudes to the product and their suppliers. In particular, we examined this attribution process when the conditions of an incident change. The second objective was to extend knowledge about the effects of different channel responses on consumers' trust and behavioral intentions. The results of extended interviews with consumers and experts are discussed in *Chapter 2*. Based on the principles of reflective science, views, opinions, experiences, and practices with food safety and related aspects are provided. In *Chapter 3* we highlight the opinions of supply chain members and compare practices using four case descriptions and cross-case comparisons. The results of the interviews with consumers, experts, and supply chain members provides the context in which the attribution process of food safety incidents and channel responses develops. These interviews provided us also with the stimuli used in the main experiment.

In *Chapter 4,* the effects of different conditions of food safety incidents on trust are presented and discussed. In an experimental design, the effects of a difference in locus, controllability, and stability of food safety incidents on consumers' trust were examined in two different product groups. Contrary to the reflective research approach used in the previous chapter, the effects of food safety incidents were examined here within the tradition of positive science. In *Chapter 5* we build on the outcomes of the first part of the experiment, discussed in Chapter 4. In this second part of the experiment, we examined the effects of differences in response attributes like compensation, apology, responsibility, speed of product recall, and communication as part of a response strategy, on consumer's trust. In *Chapter 6,* we reflect on the findings of the studies and translate them into managerial recommendations and avenues for future research.

Chapter 2 How Consumers and Experts deal with Food Safety and Food Safety Incidents: An explorative study

'A protocol in which a consumer tells the story of how the product is consumed can be examined for how the consumer interprets the consumption experience'.

Levy, Sidney (1981) in: "Interpreting Consumer Mythology: a Structural Approach to Consumer Behavior," Journal of Marketing 45 (summer) 49-61

2.1 Introduction

On March 1, 1999, BBC published a photo of the Price of Wales, accompanied by meat experts and representatives of Welsh Beef Promotions, eating beef on the bone, and saying it was absolutely delicious. Just one month before, the ban on beef was extended for another 6 months because of the risk of contracting Creutzfeld Jacob Disease (CJD), the human form of "mad cow disease". Newspapers suggested the Prince of Wales 'cocked a snook' at the government to demonstrate beef was safe to eat and to promote the interests of the Wales Beef Industry. At the same time, a survey revealed substantial consumer concerns about CJD. With this provocative action, the Prince of Wales intended to demonstrate that in *his opinion* beef was safe to eat. Consumers' decisions on what they eat or drink are strongly influenced by *their opinions* on the risks associated with consumption, their experiences with food safety incidents, and what they know about food safety. Public opinion (the 'layman's' opinion) about what is safe and what is unsafe is often substantially different from the view of experts (Frewer et al. 1996; Frewer and Miles 2001; Frewer, Shepherd, and Sparks 1994b; Sjöberg 1999; Slovic 1987; Terlouw 2002) or public spokespersons.

In this chapter we address the issue of food safety by presenting the results of interviews with consumers and experts. The aim of this study was to examine food-related themes by reporting views, experiences, thoughts, and actions with respect to food safety and food safety incidents in an everyday context. Its findings contribute to an understanding of how

consumers perceive food safety, how they learn about food safety and how they attribute blame for food safety incidents.

What determines when Food is perceived as Safe?

There is a substantial stream of research on aspects concerning how *consumers* make inferences about the expected quality of food products; for instance, about the role of quality attributes and quality cues (Grunert et al. 1996; Luning, Marcelis, and Jongen 2002; Steenkamp 1989) and the role of information and experiences with a product (Steenkamp 1989; Steenkamp, Wieringa, and Meulenberg 1986). Also, the extension of risk research, originally focused on the risk perception of new technologies (Slovic 1993; Slovic 1987; Slovic 1992; Slovic, Fischhoff, and Ligtenstein 1982), to the perception of food hazards and food-related risks (Frewer, Shepherd, and Sparks 1994a; Frewer, Shepherd, and Sparks 1994b; Sparks et al. 2001; Sparks and Shepherd 1994a; Sparks and Shepherd 1994b) has contributed to a better understanding of consumers' perception of risk in relation to food safety. As food safety is generally unobservable before consumption, however, quality cues are used in consumers' day-to-day shopping routines to draw inferences about safety and implicitly to balance risk versus functional benefits and the hedonic pleasure that the food products provide. Quality cues include perceived freshness, smell, and appearance of packaging.

People in the Netherlands generally perceive food products as safe to eat (European Commission 2006); terror, violence, and insecurity on the street are perceived as more frightening and presenting greater risk (Dagevos and Hansman 2003). The level of perceived safety, therefore, is more relative than absolute. Consumers' perception of risk, or "intuitive risk judgments" as it is called by Slovic (1987), is subjectively based and content dependent, and as such may differ between individuals. Or, as Todd (1982) stated based on his literature review, risk perception and risk treatment are determined by personal and socio-economic characteristics and situational variables. People tend to rate personal risk lower than the risk to people in general, and the risk to society ('overoptimistic bias'). Risk perception also differs between experts and laymen (Drottz-Sjöberg 1991; Slovic 1987; Slovic, Fischhoff, and Ligtenstein 1982; Sparks and Shepherd 1994a; Vlek and Stallen 1980). Other differences observed in studies (Drottz-Sjöberg 1991; Frewer 2004; Miles et al. 2004; Siegrist 2000) are the tendency of women to rate risk higher than men do, whereas men tend to have more confidence in institutions and authorities. Siegrist (2000) suggested in that respect that women are more concerned about health and safety as they are responsible for the well-being

of the family. Also, members of certain ethnic groups and people in lower social classes tend to perceive more risk from various hazards; younger people rate risk lower than elderly people do; and people with higher incomes are less concerned with food safety issues. Miles et al. (2004) also found a relationship with age: elderly people were more concerned about food safety. Situational variables that contribute to a perceived (and felt) difference in risk may vary from place of consumption (e.g., at home versus on holiday abroad) to family composition (e.g., presence of young children or elderly people). Todd's (1982) risk perceptions consist of three elements: *components*, *levels,* and *types* of risks. The *components* refer to what Cox (1967b) and Cunningham (1967a) call the product of 'uncertainty' (or self-confidence) and 'consequences' (or motives and goals). Cox (1967c) identifies two types of uncertainty: performance and psychosocial uncertainty; the type of uncertainty influences the process of searching for information and the way this information is processed by people. The *levels* refer to a general risk level (e.g., at product-category level), an intermediate risk level (e.g., at product-class level), and a specific level (e.g., at brand level). The correlation between consumer behavior and risk perception seems to be stronger at the intermediate and specific levels than at the general level (Todd 1982). The *types of risks* refer to different objects. Jacoby and Kaplan (1972) distinguish 6 different types of risk: financial risk, performance risk, physical risk, psychological risk, social risk, and the risk of loss of time. With respect to food safety, physical risk (health risk) seems to be the most relevant (Derbaix 1983).

For supply chain members, policy makers, and agencies that control compliance with food regulations, to determine what is safe and what is unsafe is easier relative to the judgments consumers have to make. On the one hand, sophisticated equipment is used to detect potential hazards in products and processes, and Quality Assurance systems like GMP, HACCP, and ISO certification programs are used to establish monitoring and control systems. On the other hand, legislation like the General Food Law and other directives [for a review of the European Food Safety Law we refer to van der Meulen and van der Velde (2006)] have set the rules companies must comply with. Consumers, however, rely on experience and what they have learned about food safety. In short, the results of surveys reveal that food is generally seen as safe to eat and not very risky. However, risk perception is subjective, influenced by personal characteristics, situational variables, and product characteristics. Food safety risks are difficult for consumers to determine and, therefore, mainly quality cues are used.

How people deal with food safety and food safety risks

Dealing with food safety and unexpected food safety incidents can, in our opinion, not be separated from food consumption. Food consumption, like consumption in general, is loaded with tradition, personal characteristics, culture (McCracken 1986), and experiential aspects (Holbrook and Hirschman 1982). Food is a means of cultural expression (Warde 1997) and food consumption incorporates both dynamic and stable elements. On the one hand, food preferences change as a result of increasing cosmopolitanism; individual snacking replaces (social) family meals, differences between meals eaten in town and countryside diminish, and differences between domestic and professional cookery decrease (Warde 1997). On the other hand, staple foods continue to have a stable and central position, showing how difficult it is to alter people's food habits. Indisputable, health aspects play a more important role in food safety. Warde (1997) concluded, based on a content analysis of women's magazines, that only four percent of the recipes in these magazines included a reference to health aspects in 1967, relative to 16 percent in 1991; when specific nutritional information was included, the percentage rose from 9 percent to 65 percent between 1968 and 1992. The relationship between food and health is, however, not limited to nutritional aspects, but also has to do with the safety of ingredients and preparation. New ways of preparing foods became popular simultaneously with the changes in food preferences, like the use of the microwave. This may have given rise to new food safety incidents, like those resulting from insufficiently heating foods.

Because of the experiential aspects of consumption, Holbrook and Hirschman (1982) proposed that consumption behavior should not only be investigated from an information-processing point of view, originating from a rational and micro-economic approach, but should also incorporate experiential aspects like fun, enjoyment, and pleasure. Phenomenological studies, like the interpretive consumer research studies of Belk (1975), Rook (1985), and Holt (1995), are in that respect recommended methods to unfold or portray behavior. Holt (1995), for instance, proposed a typology of consumption practices that goes beyond the economic perspective of consumption and the idea that consumption is structured by the properties of the consumption object. Using metaphors, Holt describes consuming as experience (the subjective and emotional reactions of consumption), integration (how people acquire and manipulate object meanings), classification (using objects to classify consumers), and play (developing interpersonal consumer actions).

Food consumption is also strongly influenced by habitual behavior, as consumers have limited resources to make thoughtful decisions day in, day out. Research by Khare and

Inman (2006), for instance, has shown that meal choices, in particular in relation to breakfast, reflect highly repetitive behavior. This means consumers frequently make instant decisions and are forced to use heuristic rules or quality cues.

Consumers use a number of 'strategies' to cope with perceived risk. Roselius (1971), who distinguished eleven risk-reduction strategies in combination with different types of risk, found loyalty to a brand to be the most preferred risk-reduction strategy (risk reliever). Other risk-reduction strategies found were buying advertised brands (Barach 1969; Cox 1967a; Wiggens and Lane 1983) and word of mouth (Arndt 1967a; Arndt 1967b; Cunningham 1967b; Cunningham 1964; Perry and Hamm 1969). Seeking information is seen as the most powerful risk-reduction strategy by Cox (1967b), next to brand loyalty, own experience, and the selection of a well-known brand. However, the role of information is questioned by Gemünden (1985) and Steenkamp, Wieringa, and Meulenberg (1985), especially for routine decisions. Personal experience of food products is, according to Steenkamp (1985), preferred as a risk-reduction strategy by consumers above other sources of information. Steenkamp (1989) also noticed other strategies used by consumers to reduce risk: buying more expensive brands, making a selection based on store image, and reliance on warranty or the manufacturer's reputation. Branding or labeling can also be an effective tool to reduce perceived risk, as was found by van Trijp (1997), who examined its effects in relation to pork, which is mainly sold unlabeled. Mitchell (2001) found that the quality of the products and the assortment offered in stores and, in particular, cleanliness of the store are heuristics used by consumers to judge the physical risk in their store selection and to reduce perceived risk.

Trust, as the mirror image of risk, also plays an import role as a strategy used by consumers to cope with risk. Trust helps consumers to reduce uncertainty or risk (Mitchell 1999). Whereas *risk* is related to the cognitive aspect of how people perceive a possible negative, but uncertain, outcome, *trust* refers to the (mental) strategy used to cope with this uncertainty. Trust may be seen as avoiding the chances of a negative outcome (Barney and Hansen 1994). Trust in food is deep rooted in both the culture and history of nations and is an important determinant of food choices (Draper and Green 2002); trust is strongly connected with familiarity and confidence. These three constructs are members of one family, according to Luhmann (1988), but they are also distinctive constructs and interact with each other. *Familiarity* refers to the distinctions people make between what is known (familiar) and what is unknown (unfamiliar). The types of food products people consume are a result of a process of familiarity that starts at birth. Clear boundaries mark areas of what is familiar and what is

not. Unfamiliarity with food products, in general, discourages people from eating them.[1] *Confidence* is bound to systems, external attribution, and passive forms, whereas *trust* is bound to oneself, to internal attribution, and to active forms. Trust means considering alternatives, weighting risk, and making decisions based on evaluation of the alternatives. De Jonge et al. (2004) make more or less the same distinction, and state that an object of confidence can be anything, such as safety; whereas trust refers to (social) relationships. Product brands, store brands, and corporate brands are helpful tools for consumers to cope with uncertainty as they are often stable and trustworthy symbols of value in a rapidly changing environment (Elliott and Wattanasuwan 1998; Fournier 1998). Research by Mitchell and Boustani (1994) and Lau and Lee (1999), amongst others, has shown that the attribute 'well-known' brand was ranked highest by consumers, both in pre-purchase and post-purchase situations, as a tool to reduce risk. Research by Chaudhuri and Holbrook (2001) not only convincingly confirmed the positive effects of brand trust on purchase loyalty and attitudinal loyalty, but also showed the interaction with product category characteristics. The interaction effect found confirmed in turn earlier findings by Sujan (1985) and Lurigio and Caroll (1985), but in particular Bettman (1973), who found that the perceived inherent risk of a product group is an important factor in the choice process of a consumer. In short, how people deal with food safety must be investigated within the larger framework of food consumption. Food consumption is a mixture of both stable elements (e.g., staple food or traditional products) and dynamic elements (e.g., new types of food, new food preparation techniques). In order to make safe choices of food products, frequently within time constraints, consumers use a mixture of reduction strategies and heuristic rules and cues.

In Study 2, which was aimed at extending understanding about consumer behavior, we examined how consumers perceive food safety, how they experienced food safety incidents, how they handled them, how they cope with food safety risk, and what cues they use to examine food safety. In Study 3, we investigated the views of experts on food safety and related issues, and looked at how they perceive food safety and food safety incidents.

[1] Consider the Dutch saying, '*Wat de boer niet kent dat eet hij niet*' ('What the farmer does not know he does not eat').

2.2 Study 2: The Consumer [2]

2.2.1 Method

Group discussions with consumers were held to investigate how people perceive food safety and food safety incidents. As Gordon and Langmaid state (1988), *group discussions* are a useful tool to understand consumers' vocabulary and attitudes, and to encourage spontaneity of response. Group interaction in particular is an advantage of the technique, as people often need the stimulation of others before they voice their own thoughts. The literature suggests that as many focus groups should be conducted as necessary for the moderator or observer to be able to anticipate what will be said; this is usually the case after three to four groups (Malhotra 1999). In this study, four group discussions were held.

Interviewees

Twenty-four housewives (see Table 2.1) participated in the four focus groups (six housewives per group). Housewives were selected because they are mostly the 'gatekeepers' of the type of food that is bought and prepared (see Appendix 3 for a description of the sample).

[2] A detailed report about the finding of the focus groups with consumers was issued separately: Wiegerinck, Vincent J.J. (2003a), "Consumenten vertrouwen en voedselveiligheid. Rapportage consumenten vooronderzoek.," Tilburg University, Department Marketing, Faculty of Economics and Business Administration.

TABLE 2.1
CHARACTERISTISCS OF INTERVIEWED CONSUMERS

Pseudonym	Age	Social Class	Martial status	Product group	Occupation of husband or partner	Own occupation	Children at home
Willeke	33	C	Divorced	Vegetables		Housewife	1
Linda	33	C	Living together	Vegetables	Process operator	Housewife	--
Yvonne	43	B2	Married	Vegetables	Bakery Chef	Agricultural worker	2
Loes	39	B1	Married	Vegetables	IT specialist	Hospital nurse	2
Karin	52	D	Widow	Vegetables		Housewife	--
Nicole	40	B2	Married	Vegetables	Mechanic	Part-time agricultural worker	1
Marijke	36	B2	Married	Vegetables	Disabled	Housewife	1
Lenie	51	C	Married	Frozen Foods		Counter clerk	2
Carola	42	D	Divorced	Frozen Foods		Waitress	1
Will	45	C	Single	Frozen Foods		Taxi driver	--
Elly	49	B1	Married	Frozen Foods	Headmaster	Telephonist	1
Nazalh	27	B2	Married	Frozen Foods	Snack bar owner	Nurse	1
Heleen	38	B1	Married	Chicken	Office manager	Nurse (part time)	3
Anja	45	C	Married	Chicken	Disabled	Housewife	2
Netty	50	C	Divorced	Chicken		Secretary	--
José	37	B2	Married	Chicken	Manager	Housewife	3
Petra	33	B1	Married	Chicken	Coordinator	Nurse (part time)	2
Christine	38	C	Married	Chicken	Chauffeur	Housewife	--
Sofia	30	B2	Living together	R.T.E. meals	Houseman	Student/ass. Accoun	--
Laurien	38	B2	Divorced	R.T.E. meals		Nurse (part time)	1
Martina	25	C	Single	R.T.E. meals		Housewife	1
Alexandra	28	C	Married	R.T.E. meals	Pizzeria owner	Kitchen help	--
Angelique	26	B2	Living together	R.T.E. meals		Student	--
Heleen	35	B1	Married	R.T.E. meals		Potter	2

All respondents were members of a panel of housewives who periodically participated in surveys by IPM, a leading Dutch research agency. Each focus group covered one particular product group: ready-to-eat meals, chicken, vegetables, or frozen foods. These product groups were chosen as they all require special preparation and storage compared to shelf-stable products like dry grocery products and, therefore, might be more likely to lead to a food safety incident.

Data collection

The focus groups were semi-structured and were led by an experienced moderator. Participants were encouraged to speak in their own words about what it is that makes food safe or unsafe, to tell about possible experiences with food safety incidents, to describe how they buy, prepare, and store foodstuffs, and to speak about responsibilities for food safety. The first part of each group discussion was directed at collecting opinions and experiences with food safety and food safety incidents. In the second part of the group discussion, hypothetical food safety incidents were discussed. Consumers were requested to judge

vignettes of different food safety incidents as a pre-test for the experiment. Each focus group took 1½ hours. All focus groups were observed by the author and recorded on videotape; the sound tape was typed out verbatim.

Data Analysis

In line with the exploratory objective of the study, analysis followed the procedures outlined by Miles and Huberman (1994) to review issues and to identify central themes. Segments of the interview texts were identified, marked, and assigned to one or more codes to reveal a structure. The software program Kwalitan 5.0 was used for the coding process. This program helps to organize qualitative data without affecting the original data. It enables the structuring of data and supports the process of interpretation. The total length of the texts analyzed was 116 pages A4.

2.2.2 Results

'Safe' food associations

Consumers associate 'safe' food with a large number of product attributes or quality cues like *'fresh'*, *'containing vitamins'*, *'free of additives or hormones'*, *'hygiene'*, and *'not manipulated'* (see also Table 2.2). Some consumers associate organic products with 'safe' foods. Issues which originated decades ago are still important to some consumers, like the list of E-additives (known as the list of 'Hospital de Paris') which were claimed to be carcinogenic. At the same time, however, safety is taken for granted, as cost and effort outweigh risk. Take Linda, for instance:

> 'I had a list of specific points of attention...eh…I don't remember the numbers [the E numbers] from the top of my head, but if the product contained that stuff it was not so good' (*Linda*).
>
> *Interviewer*: What was not so good?
>
> 'Yeh, carcinogenic I believe was what was stated. Yes, you had to take care if it contained E10, because that was not so good to eat. Ah! I don't remember the figures any longer. I paid attention to this for a long period, but it is a gigantic job. It took too much time when I was shopping' (*Linda*).

Knowledge about how to deal with food safety is acquired through several agents: magazines, newspapers, radio and television, information on food packages, and word of mouth. Situational factors like hypersensitivity of family members to specific food ingredients or the

presence of young children or elderly people in the family seemed to determine the particular interest of some of the interviewees in food safety. This observation is consistent with comparative findings by Belk (1975), who showed that situational differences influenced product preferences. The influence of situational factors was expressed in the special attention given to the ingredients stated on packaging or in avoidance of consumption of certain products. Loes said that her food choices were influenced by having her allergy, Petra mentioned her son's allergy, José referred to the vulnerability of her mother-in-law, and Elly commented on the 'saving 'mentality of her aunt:

> 'Coloring agents, yes, I am allergic to coloring agents and preservatives; I never buy canned food and frozen foods because of it' (*Loes*).

> 'My son has allergic reactions to sugar and coloring…I notice it when I give him cookies which contain sugar: within one hour he gets really mad. When I give him candy with coloring he is certainly not enjoyable. These are things that I also hear from others' (*Petra*).

> 'I take care not to serve my mother-in-law eggs, chicken, and things like that…because of salmonella…she is really vulnerable. She suffers from senile dementia and does not eat well anymore …and then you have to watch out a little more. I am healthy and I can handle some bacteria but I think that those people and children are more sensitive to them' (*José*).

> 'My old auntie of 89 is inclined, for instance, to leave a small piece of meat in the refrigerator for days and then eat it. I don't like such things if I am aware of them. Then I throw it away and try to tell [not to eat leftovers] her…at least, I say I don't like it, and that she should eat fresh products every day. She was used to doing that, but as she got older she apparently became more easygoing' *(Elly)*.

Nazahl, a young mother and nurse in a hospital, worried about food safety and warned the other women participating in the discussion about cross-contamination. She always fries meat thoroughly and doesn't like undercooked meat as the blood may contain bacteria. Only fresh food is acceptable for her one-year-old child:

> 'For my little daughter I always take care that I only cook and prepare fresh products. I find baby food jars creepy…' *(Nazalh)*.

> *(Interviewer):* Why is that creepy?

> 'Well, you sometimes see in newspapers that something has been found in jars, or that products are not completely ... I find it [using baby food jars] simply dangerous for her' *(Nazalh).*

Some of the participants associated unsafe food with genetically modified food: Angelique, for example, showed her fear of this new technique, in particular because of what she thinks are unknown long-term effects:

> 'I try to have some confidence in what the government is doing; that they take care I will not die from what I eat. On the other hand, I think we are experimenting now with that gene or whatever they put into food. Certainly it will have been tested, but what will be the effects over forty years of what I give my children now? Or will children become allergic to it in the same way as they are allergic to milk now? These things have not been studied. They [the government] did not consider the longer term. These things, I find them gruesome; what are the effects long term?' (*Angelique*)

Opinions about food safety

Food in the Netherlands is generally perceived as safe, despite the occurrence of scandals, incidents, and animal diseases. Some housewives made a comparison with other countries, stating that in their opinion foodstuffs abroad are not safe. They illustrated this by mentioning the precautionary measures they take when they are on holidays in order to protect themselves and their families: only drinking bottled water and avoiding buying food products at markets. As a result of this opinion, most of the housewives stated that they paid little attention to the labels on food products under normal conditions. What is stated on the labels is mostly believed. Drivers of the feelings of safety are the perception of an effective food control system, the feeling that strict legislation is in place, the idea that recent incidents have led to more attention being given to food safety, and the expectation that producers will not sell unsafe products, as, for instance, stated by Loes and Nicole. It seems that sometimes even a certain level of blind faith exists in the food supply system.

> 'Yeh, look, several things have happened in recent years [Loes referred to food safety incidents]. I think that in factories or on farms or whatever, controls by vets and inspectors take place now more than ever' *(Loes).*

> 'I think that all products are controlled, to make sure everything is ok. If something is really bad, than it will simply not be sold or it will be withdrawn from the market' *(Nicole).*

There were also participants who stated that food is not as safe as it is assumed to be. José associates food safety with hygiene and the way food products are handled. She buys

frequently in '*natuurvoedingswinkels*' and has an intolerance for products that contain sugar and milk. José expressed a strong opinion about the use of additives in products:

> 'I think pesticides, additives, and all that stuff is used too easily. That also is a kind of food safety problem. I have an intolerance for some products, and when you pay attention to what is added... I pay attention to it [the presence of additives and pesticides] and to coloring agents also' *(José)*.

Some of the other housewives in this group tried to put the issue of food safety in - what they thought was - the right perspective by emphasizing the existence of strict food regulations. They posed that buying food products is a highly routine activity and that it is better not to think to much about what can go wrong. As Netty said, in an indirect rebuke to José:

> 'I think people are careful as far as hygiene is concerned, but you can also be too careful. I know somebody who would never touch a door handle other than in this way [she demonstrated it] with his arms. Well, I think that's ridiculous...you can sometimes also exaggerate' *(Netty)*.

Food safety of product groups

The feeling that food products are generally safe does not apply to all foodstuffs. Chicken, fish, and, to a lesser extent, other meats, are perceived as relatively unsafe and vulnerable products. Vegetables, on the other hand, are considered safe because, as was said by some consumers, '*Vegetables are washed before eating*'. The visible results of the activity, rinsing sand and dust off leaf vegetables, for instance, support the idea of safe foods. But not only habitual aspects lead to this differentiation between vegetables and chicken, other meats, and fish. Differences also exist on the cognitive level. For instance, *Salmonella* as a microorganism on eggs that can cause foodborne illness was well known to the participants; but few had heard of *Listeria* as a microorganism on vegetables that also can cause serious illness.

Consumers seem quite confident that the precautionary measures they take themselves are sufficient to protect them from foodborne illness. However, the practices of others are sometimes observed suspiciously. Several cues serve as signals of the level of food safety, like the appearance of shop personnel or the way food products are presented, as Loes and Lenie said about purchasing on a market:

> 'No, I would not be quick to buy shrimps or other types of fish on a market. Look, when it is a sunny day, they [the stallholders] mostly have such a nice orange marquee covering it. And through that color it all looks healthy, but no... if it [the fish] is not put on ice... you don't know how fresh the fish is. It

> can be from the day before, it can be this morning's, but in the afternoon when the sun shines, no I don't take the risk. When it gets warm, then bacteria will soon come with fish, and you can easily get food poisoning' *(Loes)*.

> 'When I walk around a market and there is such a chicken farmer, or whatever, I never buy there. I am pretty sure it [the products] will be chilled and so on, but for one reason or another I always hesitate to buy there, as I always have feelings like, you never know' *(Lenie)*.

Food safety cues

The 'best-before date' has been found (Tsiros and Heilman 2005) to be a strong indicator of quality (in particular for fresh produce) and - indirectly - of safety. Consumers usually check expiration dates on the packaging. Tsiros and Heilman (2005) found that the percentage of consumers who checked dates ranged from 42 percent for pre-washed and pre-cut lettuce to 93 percent for milk. The greater the perceived risk, the more frequently expiration dates were checked. A majority of consumers in their survey held a strong belief that the quality of a product deteriorates throughout the course of its shelf life.

Some of the housewives in our survey remarked that 'best-before dates' are convenient to observe, and are at times the only quality cue they use, for instance, for dry grocery products. In contrast to the findings of Tsiros and Heilman (2005), we found that other attributes were used by the interviewees in addition to the 'best-before date' to judge the safety of a product, ranging from the perceived freshness of vegetables, to the appearance of the eyes and gills of fish. For some products, this was simply because a 'best-before date' is not available as products are displayed in large quantities (like fruit and many vegetables). Most of these attributes are quality cues, because safety as such is unobservable. Experience is the main driver of what quality cues are used.

TABLE 2.2

PRODUCT SAFETY CUES AND ASSOCIATIONS

CUES	**ASSOCIATIONS**
Best-before date	Free of Salmonella
Expiration date	Bio-dynamic
Color	Hygiene
Smell	Not manipulated
Packaging (clean, undamaged)	Free of hormones
Freshness	Free of additives
Unparched leaves	Natural
Crunchy appearance	Contains vitamins
Eyes and gills of fish	Animal friendliness
Cleanliness (store, shelf, shop personnel)	
Chilled (store)	

Dealing with food safety

Reduction of the number of foodborne illness caused at consumers' homes is one of the spearheads of national health education programs. Stimulation of the hygiene measures of washing hands and surfaces often, separating products to prevent cross-contamination, chilling and refrigerating food products promptly after purchasing at the right temperature, and cooking long enough and at the right temperature are the four cornerstones in these programs (see, for instance, the 'fight bac' program in the US[3] and a similar program in the Netherlands by *Het Voedingscentrum.*[4] Despite reported progress in consumer awareness of foodborne illness and the necessity of precautionary measures, results of cross-sectional and longitudinal studies as well as observational studies show that cognition is relatively low or incomplete, or that actual behavior differs from articulated behavior (Redmond and Griffith 2003; van Gurp 2003). For instance, people wash their hands after preparing raw meat, but they are unaware of the time needed to make hand washing effective (van Gurp 2003).

In the eyes of the housewives interviewed, food preparation is mainly a matter of experience. Written cooking instructions were said hardly to be used. General rules like proper cooking of meat and chicken are generally observed, however, with some variation; if, for instance, a long baking time affects the taste or structure of the product, as with beef, personal preferences prevail. Other precautions taken include not putting prepared products on used plates, using a glass plate instead of a wooden plate, heating leftovers only once, and defrosting frozen products in the refrigerator. Storage of food products and leftovers is handled in various way. Karin, for instance, bought special boxes that could be marked with a best-before date. In practice, however, it worked out differently:

> 'Well, I have special Tupperware boxes in which you can preserve food products like small stumps of chicory or mushrooms, even for two weeks. It saves money. However most of the time I forget to mark the date and then I have to see if it looks good. So I bought the boxes for nothing' (*Karin*).

The 'best-before date' is a reliable safety cue and is used as a primary indicator. Even if the appearance of the product is good, some interviewees throw the product away when the 'best-before date' has expired. Some vary their behavior, depending on the type of product, implicitly balancing the cost of throwing a product away and a food safety risk. As José said,

[3] See www.fightbac.org retrieved on April 26, 2006.
[4] see www.bac-vechten.nl retrieved on April 26, 2006.

> 'You should not use fresh produce and meat when the best-before date has expired. Vacuum-packed products, crackers, and things like chocolate spread are different' (*José*).

Chicken was frequently mentioned as a product category that requires caution. The risk of cross-contamination seems to be well- known. Take Lenie as an example:

> 'In the past, I was inclined when I was baking meat to put it aside on the plate I used for the raw meat before, as you had to remove the meat and the sauce to add water for a moment, and then put in the meat again. I never thought about it till it was said you should not do this. Yeah, it was raw meat that was there and there are 'bacillus' now and than they [the bacillus] return' (*Lenie*).

Rook (1985) and Wallendorf and Arnould (1991) showed in their surveys strong signals of ritual behavior with respect to food. Wallendorf and Arnould (1991) reported in their multimethod study the powerful and enduring rituals surrounding Thanksgiving Day; how traditional recipes are still alive, and how family members have the same role in preparing and serving the meal for years and years. Some respondents in our survey also showed strong habits, almost rituals, in dealing with food safety. Martina, for example, mentioned that she always selected products from the last row on the shelf in the supermarket, because she knew the supermarket personnel always put the freshest products on the last rows. Heleen said she always tore off the skin of a roasted chicken to remove, as she said, the '*bacteria*'. Carola said she always washed vegetables because, as she said,' *You are washing the bacteria away*'. The habits are not limited to food preparation, but sometimes also encompass cleaning the dishes. For instance, Lenie told us that she not only selected and prepared food products thoroughly, motivated by her role as gatekeeper of the family, but also added salt to the dish water to make it '*strong*'. These episodic strings of events, in a fixed sequence (buying, preparing, and cleaning), and their repetitiveness over time, point strongly to 'ritual behavior'. Though some of these practices are technically only marginally effective, they give these consumers a feeling of safety.

Experiences with food safety incidents

Quite a number of respondents had an experience with some kind of a food safety incident. Most of these incidents were relatively mild, caused by eating poor products unawares, but some had potentially dangerous causes, like a nail in a product or a paperclip in a loaf of bread; and some were very unappetizing, like a rat's teeth in liver pie. For some participants, food poisoning had resulted in serious illness. Careless preparation at home or at the

restaurant was mentioned mostly as the basic cause of incidents. Lenie and Alexandra described food safety incidents they personally experienced:

> 'One time we had eaten Chinese food and my husband suffered from very serious food poisoning afterwards. He was really very ill. It looked as if he was almost dying. The children had to leave the house and we were not allowed to touch anything. Everything had to be cleaned…So it was really frightening' *(Lenie).*

> 'My partner had not cooked a chicken leg properly and I became very ill; you really think you will die' (*Alexandra*).

Own experience with a food safety incident was a popular subject for discussion in the focus groups. Some respondents stated that their experiences were often also exchanged at birthday parties with friends and relatives, either to inform others or as a form of entertainment. The exchange of experiences in the focus groups led to debates about the hygienic behavior of restaurant personnel and at people's home; this was judged as unacceptable, based on what respondents had seen on television in programs like '*de Smaakpolitie'* and '*Hoe Schoon is jouw huis'*.[5] This sharing of individual experiences about food safety incidents, and the comments on and disapproval of the unhygienic practices of others, seems to be an expression of what Holt (1995) calls the 'communing and socializing function of 'consumption as a play'.

When participants were confronted with a food safety incident, they often took no action as they did not consider it worth the trouble, or some uncertainty remained about the cause of the incident. Lenie deducted that her husband's illness must have been caused by the Chinese food, but did not take any action. On the contrary, her family ate there again. She probably intuitively balanced costs, like the time and effort needed to find another Chinese restaurant, and the expected small chances of a repetition of the incident.

> 'We did not take action…stupid maybe; we should have returned to the Chinese and said: 'Hey, what have you done now with the food'…He (Lenie's husband) ate Chinese food Sunday and became ill on Monday. Then you think, well, it was probably caused by that Chinese food. But we did not take steps' (*Lenie*).

> *Interviewer*: Did you ever eat there again?

[5] '*De smaakpolitie'* en '*Hoe schoon is jouw Huis'* are popular programs reporting on often nasty conditions in consumers' homes or restaurant kitchens.

> 'Yes, after a while, yes. Then it had a new owner. Then you go inside again. We decided to try it again; it is just around the corner. That is easy. It is convenient so nearby, in particular when you don't like to cook' *(Lenie).*

Not everybody ignored an incident, however; some returned with the product to the supermarket and some called the producer, whose address was printed on the product. It was said triumphantly that this course of action was very effective, as many free products were received. In general, the housewives judged the reactions of either the producer or supermarket to be satisfactory. Some mentioned an unfriendly reaction of a supermarket, for instance, Linda described an incident involving milk. Her major complaint was she was not taken seriously.

> 'The milk stood in the cooling section of the supermarket, and it had not passed the 'best-before date'; at home, I poured the milk into a glass and there was a clump like butter. Yes, that can happen once. I threw it away. It was a small supermarket nearby and when I bought milk there again, the same thing happened. This time I returned to the supermarket. I said, 'I bought two packs of milk here, and they were in the cooling section, but they were not good'. I was given a new pack of milk, but that was not done wholeheartedly. They said they expected I had stored it too long outside the refrigerator. And I thought, I will never do that again for just a pack of milk, and then not be taken seriously. I don't shop there any longer' (*Linda*).

Products whose 'best-before' dates had expired were frequently found in supermarkets. This was brought to the attention of the shop personnel. Some housewives thought the young age of the shop personnel was a major reason why old products are frequently found on supermarkets shelves.

Willingness to pay for food safety

There is some evidence, based on experimental research, that consumers are willing to pay a price premium for products perceived as risky (Enneking 2004; Rozan 2004). Huang, Kan, and Fu (1999) reported that households in Taiwan with small children or with family members suffering from a chronic disease were prepared to pay a significant premium price for vegetables grown under specific conditions which are free of pesticide residues. The housewives interviewed in our study were quite reluctant to pay for food safety. This attitude was based on arguments such as that food products in this country are safe to eat, '*Organic food is a hype*' and '*You just have to watch out when you're shopping*'; but also distrust *'Who will check that a product is extra safe?'* Probably as a consequence of this attitude, not much

attention was said to be given to quality marks on products. Interestingly, organic products were frequently associated with safety. Loes suggested that producers and supermarkets had joined the bandwagon with regard to the growing popularity of organic products and suggested that sometimes only the packaging is different or that a sticker is simply put on a product to label it 'organically produced'. Yvonne supported Loes's opinion and mentioned having seen in the program '*Kassa*'[6] that consumers are cheated with free-range chickens:

> 'Yes, I have once saw that. I think it was on '*Kassa*'. It was about those batteries that the eggs come from. The reporter said, 'But this is a free-range egg'. And than you saw a barn with a small window high up. In that barn they [the chickens] walked around freely, but an incredible number of chickens were walking about. So they only had minimal space and that was a so-called free-range egg! You imagine when you buy a free-range egg that the chickens walk around on a farmyard. So I think you get cheated with this. So now I think twice before buying' (*Yvonne*).

Some housewives argued that people are frequently forced to go to specialty stores to buy organic products, but that products in such shops are far too expensive.
Despite resistance due to perceived high prices, some of the consumers were strong advocates of buying and consuming organic products. The unprocessed character of the products and the ecological way of farming contributes to a healthier and safer product image.

Responsibility for food safety

The general feeling of the interviewed housewives was that the issue of who is responsible for food safety has received more attention in recent years, primarily due to food safety incidents and animal diseases. *Farmers,* in their opinion, are responsible for providing clean and safe products and for hygiene; they should not use pesticides, artificial fertilizer, or hormones; they should take good care of their animals; and they should preferably work in an 'organic' way. One of the participants referred in that respect to the days when people were accustomed to having an apple with a small caterpillar in it:

> 'You pulled it away from the apple or you bit the piece with the caterpillar from the apple and then you continued eating' (*Netty*).

Producers should produce safe products, operate in an ecologically sound way, and be aware of the origin of the ingredients. The tasks of a *supermarket* are, in the opinion of the

[6] A consumer program on Dutch television.

housewives, to purchase products carefully, to pay attention to freshness dates and expiration dates, to store products directly in cooling sections, and to control the hygiene practices of the store personnel. Quite a few of the housewives said they paid attention to the appearances of the supermarket employees, like hair and hands, and if they wear gloves behind the fresh meat counter. Some respondents complained about the young age of supermarket personnel, who in their opinion lack sufficient knowledge about how to deal with food products. The responsibility of the *governmental authorities* is, not surprisingly, considered to be to formulate rules, to stimulate ecological ways of farming, and to control legislation, preferably as one of the housewives said, in secret.[7] This evaluation of responsibilities reflects the normative and also functional driven expectations of consumers.

Seller and buyer perspectives

In attribution theory, the so-called 'seller and buyer' perspective is used (Folkes and Kotsos 1986). People come to different judgments about the same failure, depending on their roles. For instance, Yvonne worked for a tomato farmer and had to comply with several food safety regulations. On the one hand, in her role as consumer, she held the opinion that producers should do their utmost to secure food safety, but on the other hand, as a worker in a tomato greenhouse, she had doubts about the usefulness of measures in her own job and criticized the behavior of supermarket personnel.

> 'I work in a greenhouse and when you see what he (the breeder) has to do. We have to wear gloves, caps, and sweaters. I am not allowed to use my own clothes. Yeah, that is HACCP. It is a kind of guarantee in that branch. And once every three months somebody from the HACCP controls whether he complies with all the rules. But the supermarkets created them (the rules). This was not the case in the early days. But now, under pressure… He (the breeder) delivers now to more and more supermarkets. Due to this pressure he needs to get those certificates. It becomes worse and worse… I am not allowed not wear rings, I am not allowed to polish my nails, I have to keep my nails short, and that kind of stuff. And I have to wear gloves. But when I am in a supermarket and I see them (the shop personnel) cutting cold meats and they have rings on their fingers and their nails are polished. Very long with those fake nails…' *(Yvonne).*

2.2.3 Discussion

Holt (1995) has argued that consumption behavior should also be investigated outside the boundaries of economic rationality and the conception that products are (merely) bundles of

[7] She used the word *'stiekem'*, which is somewhere between 'in secret' and 'sneaky'.

attributes that deliver benefits to the consumer. The way 'consumers consume' can, according to Holt (1995), also be described from a more sociological point of view, unraveling interactions of consumers with products and describing the other functions of products, for example, as a source of experience or vehicles to classify consumers. Holt introduced four alternative conceptions of consumption: consuming as *experience*, consuming as *integration*, consuming as *classification,* and consuming as *play*. Dealing with food safety and food safety incidents can, in our opinion, be described in a more or less similar fashion. Paraphrasing Holt's concept of consumption as an economic rationality, food safety is more than only 'freedom from harm'. Food safety is emotion. Consumers perceive food products as generally safe to eat and *feel* confident that they can consume products without harm. Therefore, food safety is not a real issue for consumers under normal conditions. Despite the small sample size, our findings are in that respect similar to the results of more quantitative surveys. Trust in brands and suppliers, and confidence in the legal food protection system seem to be the strong antecedents of these perceptions and feelings. Food safety is also more than a one-dimensional construct. Consumers associate food safety with a variety of other concepts, like 'natural, free of additives, hygiene, organic, animal friendliness', and interpret these claims in an apparently rational way as quality cues to draw inferences about safety and to reduce perceived risk. Food safety is also a volatile construct, influenced by impressions of exogenous events like animal diseases and food safety crises, but also by personal experiences.

Ensuring food safety and dealing with food safety incidents are a source of *experience*. People use an internal framework of norms, history, and conventions to find, evaluate, and appreciate safety. Producers and supermarkets are expected to deliver products that are completely safe to eat (conventions) and the government is expected to control whether legal requirements (norms) are respected. People avoid restaurants which give the impression of practicing unhygienic food preparation and adapt their shopping behavior during holidays abroad. Norms of food safety seem to be relatively stable, but are sometimes adapted to particular situations, for instance, when consumers or their family members have a vulnerable physical condition. History is sometimes a mental reference point for consumers to judge levels of food safety. Some consumers feel that food safety requirements nowadays are exaggerated, pointing, for instance, to a situation where people do not accept an apple with a caterpillar in it. Others pose that new technologies are threatening food safety.

Using the metaphor of 'consuming as *integration':* some consumers use organically produced food products as an extension of their self-concepts: they are concerned about the

safety of products, committed to ecological matters, and suspicious about the influence of the vested interests of supply chain members; they favor organically produced food products above regular products and aim to convince others of their opinion. Some endeavor to visit only specialty stores to buy these products.

In that respect, products are also useful to classify consumers, following the metaphor of 'consuming as *classification'*, according to which Holt (1995 p. 2) describes objects as 'vessels of cultural and personal meanings'. However, behavior with respect to food safety might also be an object to classify consumers. Their behavior may express an attitude of being 'very unconcerned' with the safety of food products, taking cooking and food storage instructions for 'granted', or a 'very concerned' attitude. Exponents of this last attitude might take precautionary measures to prevent any chance of a food safety incident, like cooking meals thoroughly, careful inspection of expiration dates on products, and adding supplements to the dish water, as mentioned by one respondent.

Finally, paraphrasing Holt's 'consuming as *play'*, incidents with food products, which occurred either to the participants themselves or to others, are popular subjects to discuss. Food and nutrition are inextricably connected with human existence, people consume food products every day, and incidents with food products are widespread, all of which makes it easy for people to share experiences with others. Media attention to food scandals and peculiar mishaps even make food safety a subject of entertainment.

2.3 Study 3: The Expert[8]

2.3.1 Method

In contrast to the way data were collected amongst consumers (using focus groups), individual interviews were held with experts. Individual interviews are a more appropriate tool than focus groups to interview professional people (Malhotra 1999) and to deepen insights.

[8] A detailed report about the finding interviews with the experts was issued separately: Wiegerinck, Vincent J.J. (2003b), "Consumenten vertrouwen en voedselveiligheid. Rapportage onderzoek onder experts". Tilburg University, Department Marketing, Faculty of Economics and Business Administration.

Interviewees

The interviews were held with 8 experts who were involved directly or indirectly with food safety, for instance, with respect to policy development and legal affairs, communication, controlling, or consulting. Interviewees were approached through a letter from the Dean of the Faculty explaining the objective of the survey and asking for participation. The author followed this up and made the appointments with the interviewees (see also Appendix 4).

TABLE 2.4

CHARACTERISTICS OF THE INTERVIEWED EXPERTS

Expert	Organization/company	Profile
Expert M	Food and Product Safety Authority	Chief Inspector of Food Safety. Responsible for coordination of food control.
Expert S	Food Information Centre	Deputy director. Responsible for policy development.
Expert W	Communication Advisory Agency	Director. Worked for broadcasting companies. Advisor to parliament about informing citizens.
Expert T	Public Relations Agency	Partner. Worked for 20 years as director of public relations at leading Dutch Food Retailer.
Expert N	Ministry of Agriculture, Nature and Food Quality	Policy coordinator of Consumer and Food Chain. Responsible for food safety matters.
Expert U	Dutch Supermarket Association (CBL)	Senior Policy Officer for Public Affairs. Coordination of food safety policies.
Expert V	Dutch Association of Food Manufacturers	Project manager for food and communication. Worked for 11 years as food technologist.
Expert R	Ministry of Health, Welfare and Sport	Policy coordinator of food hygiene. Worked for 17 years at TNO and served as food safety inspector.

Data collection

The interviews covered to a large extent the same topics as were discussed with the consumers; additional topics had to do with the relations between their professions and food safety. The first part of each interview was directed towards collecting opinions and experiences with food safety and food safety incidents. In the second part of the interview, hypothetical food safety incidents were discussed. The experts, like the consumers in Study 2, were requested to judge vignettes of different food safety incidents as a pre-test to the main experiment. Each interview took 1½ hours and was conducted by the author. The interviews were recorded on tape and typed out verbatim.

Data Analysis

The data were analyzed in the same way as the data collected in the interviews with the consumers. The total length of the texts analyzed was 184 pages A4.

Results

Opinions about Food Safety in the Netherlands

All experts were of the opinion that food products in the Netherlands are safe or extremely safe. Like the consumers, the experts made comparisons with the perceived level of safety in other countries, sometimes referring to the results of surveys.

> '... if you look at the *Eurobarometer*, then the Netherlands scores reasonably high as regards trust in the safety of its food' *(Expert S)*.

> 'Generally, we are in a safe range' *(Expert N)*.

> 'Well, food products are incredibly safe, but you always can improve it somewhat' *(Expert U)*.

> 'I think it is safe. At least, I don't lie awake because of it. Look, there are always people who think they get pimples from an ingredient', but they have always been there *(Expert W)*.

Several factors have contributed in their view to this high level of safety, for example, more knowledge about safety aspects of food products, a more alert attitude of the food industry, improved tracking & tracing technology, and more transparent production processes. It was also stated that firms operate less anonymously and are easier to approach; also that the understanding within firms has grown and they have a greater chances of gaining societal exposure. This reflects the growing awareness among firms of the importance of perceived corporate social responsibility and its influence on a firm's reputation (Brown and Dacin 1997; Klein and Dawar 2004). Certification of firms, of products, and of processes was also mentioned as a positive antecedent. The expert from the Supermarket Association stated the following, taking the BRC code as an example:

> 'We use certification more and more. And that is of course an important step forward made by the sector over the last years. Via certification you are able to master the food chain, and that is the way we need to go; to make sure of where the product comes from and how it is produced' *(Expert U)*.

Expert T illustrated the progressing knowledge using an incident that happened when he was serving as public affairs director at a leading supermarket chain:

> 'Well, you get the impression that food is less safe nowadays as it receive more attention. But in my opinion is has more to do with a better knowledge about food ingredients. For instance, an article was published years ago about a certain ingredient in wine. A journalist called me and said, 'Some of that stuff has been found in your wine; are you going to recall these bottles'? But that ingredient belongs in wine by nature, wine has contained that for thousands of years, but apparently we are able to detect it now. Well, the man in the street then thinks, 'Oh, it is a mess'. But people have drunk it for thousands of years, so what are we talking about'? *(Expert T)*

Food safety as a political theme

One of the experts from the Ministry stated that food safety is a political issue: the level of safety desired is politically determined.

> 'Food is safe enough, I think; how safe it has to be is a political choice: maybe food is not safe enough yet. It all depends on where you put the benchmark and I think that certain things can be improved for the consumer, namely, the information services about food. These should enable consumers to get more information about the safety aspects of food so that the consumer can make choices about further activities like refrigerating food, heating food, or choosing another product' *(Expert R).*

She explained that a political choice is often based on opinions within society; she used as an example the incident of a Salmonella infection in a home for the elderly:[9]

> 'Last October we had the affair with Salmonella Enteritis in Zwolle. Immediately, because that is the way it works at our Ministry, it was ordered that Salmonella-free eggs be used. Legislation already had been prepared on that, and it [the announcement to use Salmonella-free eggs] became part of a letter to Parliament in which a broad point of view on food safety was expressed that included a recommendation of the Health Council. You take such a step, at least within our Ministry, when you feel there is a societal need for it; if there is public concern and people no longer accept that people are dying: when there is public dissatisfaction. At that moment, the political climate is there to do something. Of course, it doesn't work always in this way, because that would mean situational management and that is not good; for that reason, we announced in our letter to Parliament proposals in several areas, about what can be improved, etc' *(Expert R).*

[9] In the period the interview was held, 4 elderly people died after they had eaten Bavorois that was prepared with raw eggs contaminated with Salmonella Enteritis.

Expert V also pointed to the difference between consumers and those who are involved in setting the political agenda. In her opinion, a consumer's response to a food safety is often moderate, in contrast to the reactions of experts and those who are politically involved.

> 'On the one hand, you see the movement of, to say it somewhat disrespectfully, the '*grachtengordel*', politics and the discussion around it. Things are clearly and rightly signaled there that have to do with food safety and the problems related to it. On the other hand, you see the consumer who reacts at certain moments, but very soon drops back into old patterns and does not raise the question whether or not the food is safe' *(Expert V).*

Consumer trust and food safety

Opinions on consumers' level of trust in the safety of food were mixed. Some experts considered consumers' trust to be relatively high, whereas others were of the opinion that it fluctuates, as a consequence of, for instance, food safety crises.

> 'We have done several surveys and found that consumers generally trust in the safety of their food. Of course, the level of trust can change when there is a crisis; but what we see is that when you handle communication well during such a crisis, telling where your product comes from and providing consumers with information about the crisis, then a crises will not lead to less trust; and that is what our supermarket members tell us also' *(Expert U).*

Most experts are of the opinion that consumers' trust in the safety of food is lower than is necessary technically. However, food safety, some argue, is merely a matter of emotion where trust plays an important role. Impressions about animal diseases are mixed up with food safety, and relationships between the origin of products and consumption are only weakly coupled nowadays because of the increased anonymity between producer and consumer. This anonymity sometimes creates a feeling of anxiety.

> 'When I see three-week-long dead cows on the front page of my newspaper, then I suppose I will eat less meat; these two things have nothing to do with each other, but they are connected by consumers' *(Expert W).*

> 'That feeling [of concern]. People suddenly realize, ' Oh, we really don't know where that potato grows and how it finally arrives on the supermarket shelf'; that gives certain precarious feelings' *(Expert V).*

> 'Food safety is a matter of trust, and trust is a psychological construct…the problem with trust is you need to decide which parties in your environment you actually trust; is that the neighbor if I am an illiterate person, or is the television, or is it more or less the same? It means we have to search for the

> agents of trust, who are the agents in my neighborhood who arouse trust most; ...some build on the paradigm of, for instance, organic and ecological breeding, others on a functional scientifical paradigm, and others read or study or share experiences ... but on average food safety is pure emotion '*(Expert W)*.

Controllability of food safety

People have different views on the risks associated with food. For some types of hazard, for example, having an accident or a disease, people feel that they are themselves relatively invulnerable, but they do not project this invulnerability onto others. Sparks and Shepherd (1994b), Frewer et al. (1994b), and Kirk et al. (2002), all found evidence for the existence of this 'optimistic bias'. Frewer et al. (1994a) also found that people tend to judge personal control (controllability) as greater for oneself than for other people. Redmond and Griffith (2004) found that UK consumers have a tendency to underestimate personal risk presented by food and to overestimate personal control. Also, regarding risk as voluntary was shown to have an influence on perceived risk (Sparks and Shepherd 1994a). Research in the UK (Miles et al. 2004) revealed that the public in general is more concerned about technological food hazards (such as genetic modification and food irradiation) than about lifestyle hazards (such as hygiene practices, fat consumption, and smoking). Several of the experts interviewed pointed to this phenomena, stating that consumers are more focused on the safety aspects of food products for their health than on the effects of their eating patterns on health. The expert from the Food Information Centre said the following:

> 'When we define food safety as the consumer does, which means you should not become sick from it, then the biggest problem is the disease of civilization. But that is a definition not many people give to it; coronary heart disease, cancer, and diabetics also have to do with the safety of food, but not with the intrinsic aspects of food but more with consumers' choices' *(Expert S)*.

Food safety, animal welfare, and animal diseases

Food safety, animal welfare, and animal diseases are strongly intertwined for consumers, in the opinion of some experts. They illustrated this by pointing out the effects of food safety crises like BSE and foot-and-mouth disease on consumer demand. Indeed, various food safety crises have had a strong, but sometimes only temporary, effect on consumer demand. Even when there was no direct relationship between the crisis and consumers' health, and even when the authorities had reassured the public that there was no danger to consumers' health, consumer reactions were often strong. Consider, for instance, the effects of the health

hazard scare related to cranberries in the US in 1959 (Brown 1969), contaminated milk in Hawaii in 1982 (Smith, van Ravenswaay, and Thompson 1988), carcinogenic effects of pesticides on apples (van Ravenswaay and Hoehn 1991), negative information about the relation between heart disease and eating red meat (Robenstein and Thurman 1996), and the effect of BSE on fresh meat consumption (Verbeke and Viaene 1999; Verbeke, Ward, and Viaene 2000). Sometimes associations made by consumers are opposite to what, technically speaking, is desirable to guarantee food safety, like the dilemma of free-range chickens. Free-range chickens are associated with animal welfare and organic production, and indirectly with safer food. To reduce the risk of dissemination of animal diseases, however, keeping chickens inside is far better. The Avian Flu, for instance, was disseminated through water birds, free-range chickens, and, ultimately, infected chickens at breeders. The same applies to the limitation of the transport time of livestock. Foot-and-mouth disease entered the Netherlands via a so-called 'staging point'. At these staging points, livestock are unloaded to allow the animals to rest, as part of (legal) animal welfare regulations, a regulation strongly supported by animal welfare activists. However, at such a point in France, food-and-mouth disease infected sheep from the UK and Irish calves that were on the way to the Netherlands. Optimal conditions for controlling for food safety are, therefore, sometimes opposite to the public's desires for animal welfare (Brugh 2003).

Expert W, a communication expert, expressed the view that the associations of food safety with animal welfare and animal diseases are sometimes an inextricable problem for consumers. The large-scale character of measures taken in response to animal diseases and shifting paradigms about the acceptance of preventively vaccinating animals had, in his view, a large impact on consumers, and resulted in confusion:

> 'Many people will have become doubtful about the safety of food during the foot-and-mouth disease outbreak. But it [destroying animals in order to prevent extension of the animal disease] has nothing to do with the safety of my food ... it has to do with the structure of the agriculture policy, its large-scale character, but has nothing at all to do with the safety of my food ... to solve the economic and agriculture dilemma[10] you create an atmosphere of insecurity in a country, lots of animals are dying, there are pictures of crying farmers and a lot of brouhaha, but 'you have to be very observant 'what it takes' to be able to distinguish these things from each other' *(Expert W)*.

[10] Boycotts on the import of vaccinated meat by non-European countries prevented European countries from vaccinating preventively.

Food safety and the supply chain

Food safety and the supply chain are inseparably connected to each other. The responsibility for the safety of food products is seen more and more by governmental bodies (European Commission 2000; *Ministerie van Landbouw* 2001) as a joint responsibility of the supply chain members: farmers, suppliers of raw materials, producers, transport and storage companies, retailers, and other distributors. Perceived consumer distrust in the safety of food products, the huge societal cost associated with food safety incidents or the prevention of incidents, and the often non-transparent character of the supply chain drive this opinion of the national and European authorities. Consumers are also of the opinion that supply chain members share responsibility for food safety (de Jonge 2004; de Jonge et al. 2005; Erasmus Food Management Instituut 2003; GFK Panelservices Benelux 2001; Marchi, Pellizzoni, and Greco 2003; Poppe and Kjaernes 2003; Timmers and de Jonge 2004).

Not surprisingly, most of the experts shared the same opinion on this joint responsibility. Expert M, the Chief Inspector of Food Safety, emphasized that 'forwarded information' within the supply chain should not only be exchanged, but should also be controlled:

> 'With forwarded information in the supply chain I mean that all channel members need to know their products. They need to know which hazards are inherent in their products. And they need to communicate within the supply chain which hazards they can control and which not. Those hazards then have to be managed further down the supply chain...and when in a previous phase of the supply chain a certain hazard is assured he [the next channel member] needs to verify backwards in the supply chain if this has actually been done' *(Expert M)*.

One of the experts expressed some reservations about joint responsibility. The Deputy Director of the Food Information Center questioned the real interest of consumers in the measures taken by supply chain members to secure food safety. In his view, supervision and transparency are needed for different reasons:

> 'I think a large proportion of the consumers is simply not interested and just expects a safe product to comes to the dinner plate; ... 'there always will be a group of producers who use crooks' tricks, so in that respect you need clear control and that should be maintained in the future; I think transparency should cover even this control' *(Expert S)*.

One of the communication experts stated that tracking & tracing is used too much to identity responsibility within the supply chain, and that the opportunities to educate consumers are

largely ignored. In his view, the Internet can be used by consumers to follow a product, in a more enjoyable way, though the supply chain:

> 'Suppose I am a schoolboy of 8 years, I can take the barcode of a product and I can travel backwards though the food supply chain. I show up at Albert Heijn, but also at the French farmer and the French trucks of the transport company; I can travel to the market in Portugal...in this way I make a cultural and social journey, I learn about economics, I learn about culture and all such things, and on every web page there is some information about food safety and the added value of the information about the supply chain becomes a story with historical, social, and economic aspects. It tells, for instance, about the sheep and goats and cheese, how it is produced, and what is done to secure food safety. And just one thing: well, I do not search with sweaty hands for safety' *(Expert W).*

The experts mentioned a variety of obstacles that in their opinion prohibit sound cooperation between supply chain members, like non-transparent supply chains, non-compliance with Codes of Practice, a lack of cohesion between information systems, an increasing flow of products from abroad, companies that fear harming their own interests, and the power play of the channel conductors' role. In addition to these obstacles, 'money' plays an important role, according to the expert of one of the Ministries. Referring to her own experience as food safety inspector and director she stated the following:

> 'Simply making profit, earning money, commercial aspects drive businesses; after I worked at TNO[11] and had visited a number of companies, I left my Ivory Tower of the government and saw that it is only money that counts...at the moment a decision has to be made whether or not many goods need to be destroyed. Financial arguments play a part in the decision, of course, and also other aspects; and then the food safety risk is translated into company risk every once in a while, hey! What are the chances it will be found and can be traced back to us? *(Expert R)*

> 'We are at a stage now that something should be done, but we have to fight now about the conductors' role in this kind of things' *(Expert V).*

Food safety and nostalgia

Some of the experts referred to the young age of supermarket personnel in relation to food safety and food safety incidents. The high turnover rate of personnel, the large number of flex-workers, the often-changing tasks these personnel have to fulfill *('First Mientje works behind the meat counter, then behind the cheese counter, and than she has to replenish the empty shelves')* make it, in the eyes of some experts, difficult to build and develop adequate

[11] The Dutch Institute for Applied Technology.

and enduring knowledge. Comparisons were made by some with earlier days. This feeling of the 'dear departed past' (Holbrook 1993) was expressed by Expert T when he talked about the role of the supermarket.

> 'I still have in mind the old-fashioned grocers who gave people advice. But because supermarkets have become so big the advice task has almost disappeared. It also has to do somewhat with the labor market, I suppose; whippersnappers of fifteen or sixteen are working in supermarkets. That is fine, of course, but the experience is insufficiently recognizable. But maybe it is also not sufficiently appreciated. I should appreciate it to recognize a supermarket people with some years of experience and who knows what I should do with specific products ... the old-fashioned butcher, the old-fashioned baker, or as in the old days, the old-fashioned mister Albert Heijn. Because when Mrs. So-and-so entered the grocery shop he knew which products she used, but he was also able to advice her on the preparation of products' *(Expert T).*

2.3.3 Discussion

The interviews with the experts about food safety revealed some recurring themes. First of all, in the opinion of the experts, food products in the Netherlands are safe to extremely safe to eat. In that respect, they share the opinion of most of the consumers. However, consumers' level of trust in the safety of food products is, according to some of the experts, lower than is needed technically. Consumers sometimes see more risk than is realistic. Numerous authors (Dagevos, Ophem, and Gaasbeek 2002; Douthitt 1995; Frewer and Miles 2001; Frewer, Shepherd, and Sparks 1994a; Slovic 1987; Slovic, Fischhoff, and Ligtenstein 1982; Sparks and Shepherd 1994a; Todd 1982; Vlek and Stallen 1980) have pointed out this difference in perception of risk between experts and the general public. Experts are sometimes concerned or frustrated that governments' decisions or priorities are strongly influenced by public perception and not by the 'hard' facts presented by themselves and supported by scientific evidence (Frewer 2004; Macfarlane 2002; Slovic 1993). Experts are often upset by consumers, who, in their eyes, are concerned about what they call the 'wrong risks'. However, public perception of risk is not driven by technical risk estimates.

Secondly, despite the different views on risk, the experts seem to realize that food safety is largely a matter of emotion for consumers. Consumers' emotions are fuelled by their own experiences with food safety incidents and impressions about animal diseases in the media. Food safety is, therefore, not a sharply defined construct, but is laden with adjacent constructs like animal friendliness and organic production. In that perspective, trust is a major tool to reduce feelings of anxiety.

Thirdly, food safety means that preparation and consumption will have no harmful effects on the consumer. However, the required level of food safety and the level of food safety that can be realized are dynamic parameters. Situational variables (like physical condition of a consumer) sometimes require a higher level of safety, whereas progressing technical knowledge about food ingredients enables safer products and facilitates higher levels of safety. The interviews made it clear that food safety is also a politically determined issue.

Fourthly, talking about food triggers nostalgic feelings to some extent. It reminded a consumer (see Study 2) to the days when people were accustomed to finding a caterpillar in an apple; it reminded also one of the experts of the days when the grocer personally knew his customers and advised them on the selection and preparation of food. The inclination towards authenticity and personal guarantee might in that respect contribute to an understanding of the segment of consumers who prefer to buy organic products or to buy directly from farmers.

Finally, food safety is the shared responsibility of the members in a supply chain. Advanced information technologies and certification systems enable a higher level of safety to be achieved, according to the experts. However, several obstacles are also perceived that prohibit sound cooperation. These obstacles to chain cooperation encompass elements like a difference in business structure, ambiguity about mutual benefits, diseconomies of time (it takes time to develop relationships), diseconomies of place (like trading with internationally sourced seasonable products), lack of interconnected assets and systems, interpersonal relationships and finally … money.

In the following chapter we explore the theme of food safety further. The experiences of twelve supply chain members with food safety, food safety policies and food safety incidents are discussed.

Chapter 3 How Supply Chain Members respond to Food Safety Incidents: Four explorative case studies[1]

Words, especially organized in stories, have a concrete, vivid, meaningful flavour that often proves far more convincing to a reader – another researcher, a policymaker, a practitioner – than pages of summarized numbers.

Miles and Huberman (1994) in: Qualitative Data Analysis

3.1 Introduction

In the event of an incident that concerns a food product, the company (or companies) involved should respond adequately. This should be done to protect first of all consumers' health in case of a potentially health-threatening incident, but also to safeguard the interests of the company or the industry involved. As far as possible, supply chain members should prevent an incident from becoming a crisis. Often, individual consumers' complaints about the quality of a food product are an 'early-warning signal' of a more severe problem or even a possible crisis. For instance, the Coca-Cola food safety crisis in Belgium, which led to the largest product recall in the history of the Coca-Cola company, started with a complaint by the head of a school about illness among several of his pupils (Anthonissen 2002). A supply chain member should, therefore, give sufficient attention to patterns of complaints to detect early signs of a potential crisis. Complaints should also be handled in a proper way. After all, a consumer can complain to the media or outside agents if he or she is not satisfied with the way the complaint is handled or feels that information has been withheld. Notwithstanding the attention that is given to a problem, a crisis is sometimes inevitable.

Most food companies, manufacturers of branded products as well as food retailers, have procedures for handling food safety incidents that range from handling individual complaints from consumers to more massive crisis. However, many food safety incidents are unique and, therefore, it is virtually impossible to prepare a strategy that covers all possible events. But

[1] A detailed report about the finding of the focus groups with consumers was issued separately: Wiegerinck, Vincent J.J. (2003c), "Consumenten vertrouwen en voedselveiligheid. Rapportage Ketenpartners," Tilburg University, Department Marketing, Faculty of Economics and Business Administration.

there are some general lessons that can be learned. In this chapter we report the results of explorative research within four different supply chains, with respect to food safety. The objectives of the research were (1) to unfold the opinions of supply chain members on food safety and responsibility for food safety (2) to explore how supply chain members respond to food safety incidents, and (3) to develop stimulus material for the experimental part of this study. The opinions of the supply chain members on food safety complement the views on food safety of the consumers and experts discussed in Chapter 2. The exploration of how supply chain members respond to food safety enabled us to draw conclusions on the differences and similarities between supply chains and supply chain members, using a case-study-based approach. Moreover, we expected it would help us to create realistic scenarios of supply chain responses, to be used in the experiment. We start this chapter by highlighting some relevant issues concerning responsibility for food safety within the structure of the supply chain. As explained in Chapter 1, we approached the question of dealing with food safety and food safety incidents from the angle of the supply chain.

We continue with a brief overview of what the literature teaches us about responding to food safety incidents. A more in-depth review follows in Chapter 5. We then report our findings, based on extensive interviews with various supply chain members.

Responsibility for food safety and the supply chain

In the production and marketing of products and services, the activities of individual companies are increasingly connected to each other (Achrol 1991; Achrol and Kotler 1999; Achrol, Reve, and Stern 1983; Anderson, Hakånsson, and Johansson 1994; Christopher 2000; Christopher 1998; Gadde and Mattsson 1987; Handfield and Nichols 1999; Stevens 1989; Wathne and Heide 2004). Global sourcing, outsourcing of non-core business activities, a need for a lean and mean business size, concentration on core competences, growth of ICT, dissemination of knowledge, and, at the same time, more demanding customers are factors contributing to this increasing trend toward cooperation between individual companies and toward the establishment of relationships outside the boundaries of the firm (de Man, 2000).

This development, however, raises new questions about food safety. Who is responsible for food safety within the supply chain? Is each supply chain member responsible only for his part? Or is an integrated approach more feasible; but how should cooperation then be organized between the independent supply chain members? There is no doubt securing the safety of food product through the total supply chain is a mutual goal, as announced by national and European authorities. More or less forced by these developments,

strong and long-lasting relationships with suppliers in supply chains, driven by the demands of the final consumer, are viewed by retailers (Schmid 2000) as an important condition to secure sustainability and food safety and to contribute to ecological and animal welfare. The traditional approach favored by retailers, where one supplier can easily substitute for another supplier therefore no longer seems valid. Direct contracts for fresh produce between large supermarket chains and farmers are used, not only to secure the delivery of the required quantity and quality, but also to control the farming conditions and to simplify the tracking and tracing process.in case of incidents Such relationships are similar to what Boddy, Macbeth, and Wagner (2000 p.1004) call supply chain partnering: 'a situation where an attempt is made to build close long-term links between organizations in a supply chain that remains distinct, but which choose to work closely together'. However, these relationships are difficult to put in an organizational framework and difficult to let it work properly. In particular how the interdependent activities have to be coordinated. Should the market do its work, or power, or hierarchy in the supply chain, to paraphrase on Powell (1990) distinction. According to Reve and Stern (1979) the interdependencies between the channel members induce the use of power to realize performance and to keep conflicts within acceptable limits. Simultaneously the dependency relation 'brings seeds of conflict' (Reven and Stern, 1979 p. 407). These conflicts, arise 'when the behavior of a channel member is in opposition to its channel counterpart' (Coughlan et al. 2001 p.238), or as formulated by Geyskens, Steenkamp and Kumar (1996) when one channel member perceives that another channel member is engaged in behavior that prevents or impede them from achieving its goals. As the channel management literature suggest (Coughlan et al. 2001) a channel conflict in itself can have positive effects, and might even be functional, as it triggers the performance of the partners and it proves partners don't have an indifferent attitude towards their relationships. However, conflicts can escalate to almost unmanageable proportions and become dysfunctional and destructive towards the partners, involving high cost, frustration and interpersonal dissatisfaction (Geyskens, Steenkamp, and Kumar 1999).

History has shown that food safety incidents sometimes end in such conflict between members in the supply chain. For instance, in 1993, a large baby food manufacturer put the responsibility for a serious incident immediately on the shoulders of one of his suppliers; almost his first action was to take legal action against this supplier (De Raaf 2000). In a more or less similar way, the Dutch Assocation of supermarkets blamed the farming sector and the

cattle feed industry in February 2006[2] for not taking proper precautionary measures after the Food and Consumer Product Authority (VWA) again found too-high levels of dioxin in pork. The association stated that such incidents caused tremendous harm to the pork industry.

In the interviews within the four supply chains we tried to examine how they cooperate with their members, either upstream or downstream with respect to food safety, how they respond to food safety incidents and how they view responsibility. But first we give a brief review of what is known about response to food safety incidents.

Responding to food safety incidents

Responding to food safety incidents means responding to everything from small, innocent, and individual complaints with a small business impact to large-scale and serious crises with a large impact on business. Food safety incidents may be positioned on a continuum, with individual and mild complaints at one end and massive and serious crises at the other end. Regardless of the position on this continuum, it is necessary to avoid possible (further) harm to consumers and to protect the interests of the company, the supply chain, or even the industry sector in case of a large crisis. A food safety *incident* does not necessarily equal the term food safety *crisis*. Mishra (1996) defines a *crisis* as (p. 262) ' a major threat to system survival with little time to respond, involving an ill-structured situation, and where resources are inadequate to cope with the situation'. An incident is an event with a much smaller impact, and easier to cope with. But quite often a range of individual complaints are early indicators of a more severe problem. In line with this distinction, with on the one hand, individual complaints and, on the other hand, crisis, sources of knowledge about how to respond can be found in both the complaint handling literature and the crisis management literature. Reactions of consumers to dissatisfactory experiences with a product, which a food safety incident in essence is, may range (Richins 1983) from doing nothing at all up to complete boycotts or creating alternative organizations to provide consumers with the particular product or service (Herrmann 1993). Actions can also have a private character or a public character (Day and Landon 1977). It is, therefore, important that the supply chain members involved keep control as much as possible over the possible effects of such an incident.

The service recovery or complaint handling literature names various elements that engender positive recovery effects, like *fair treatment*, *speed* in *taking measures*, *a fair*

[2] '*Supermarkten willen strengere dioxine controle*' press release CBL,Februari 2006.

outcome, and *a fair procedure* (Blodgett, 1997; Tax, 1998; Maxhamm, 2002). Substantial and convincing empirical evidence has been generated over recent decades concerning the effects of perceived justice on satisfaction and behavioral intention (Blodgett, Hill, and Tax 1997; Bolton and Bronkhorst 1995; Bougie, Pieters, and Zeelenberg 2003; Day and Bodur 1978; Goodman, Ward, and Broetzmann 2001; Krishnan and Valle 1979; Maxham and Netemeyer 2002; Resnik, Gnauck, and Aldrich 1977; Smith and Bolton 2002).

The literature on crisis management is, relative to the academic complaint handling literature, mainly anecdotic or case-based 'lessons learned'. Differences between incidents and crises are well-defined (Covello 1995; Mishra 1996; Riezebos, Kist, and Kootsra 1996), as are the distinctions between different types of crises (Marcus and Goodman 1991; Pearson and Mitroff 1993). But, with some exceptions (Coombs 1998; Coombs and Holladay 1996; Dawar and Pillutla 2000; de Raaf 2000; Klein and Dawar 2004; Mowen 1980; Siomkos and Shrivastava 1993; Tybout 1981), the effects of crisis-response strategies or elements of such a strategy on consumer behavior have hardly been examined. This does not imply that there is no consensus on what the major attributes of a crisis response should be. To *recall* a product voluntarily to limit further damage, to demonstrate *openness,* and to show *compassion* (avoid the impression of creating a distance from the incident or the victim) are frequently mentioned as necessary ingredients of a response (Arnstein 1994; Birch 1993; Clarke and Company 1997; Covello and Allen 1988; Fitzpatrick and Rubin 1995; Hearit 1997; Lukaszewski 1997; Mitroff and Anagnos 2001; O' Reilly 2002; Patterson 1993; Riezebos 1995; Siomkos 1999; Siomkos and Kurzbard 1994).

In response to these incidents and primarily aimed to restore trust of consumers, quite often forms of process based trust or institutionalized based trust are introduced. Trust in itself is an undisputable element in cooperation between channel members (Geyskens, Steenkamp, and Kumar 1998; 1999). Trust serves as a 'lubricant' in (economic) processes between actors and reduces complexity; trust is very effective and efficient, whereas a lack of trust urges society to install control mechanisms (Dasgupta 1988; Schnabel 1998). In it simplest form trust can be defined as (Nooteboom 2002 p.18) 'an expectation that things or people will not fail us'. Trust also promotes an effective response to crises (Rousseau et al. 1998) as people can count on each other. Trust can have different forms, ranging from *person-based* trust in intimate relationships, to *institutional-based trust.* This last form of trust goes beyond experiences of the actors, and is based on traditions, certificates, memberships, quality marks and is more diffused within a network of relationships. An

example of institutionaled trust is *'Integraal KetenBeheer' (IKB)*, which uses a hallmark to reassure consumers about the quality of products throughout the whole supply chain.

In the next section, we discuss how supply chain members deal with food safety responsibility and food safety incidents.

Method

To explore how supply chain members deal in practice with food safety and food safety incidents, how they experience food safety incidents, and, in particular, how they respond to food safety incidents and crises, we interviewed supply chain members in three consecutive stages of the supply chain: a *supplier* of ingredients or fresh produce, a *producer* of a food product who works with the ingredients or raw materials delivered by the farmer or supplier, and a *food retailer* who is supplied by the producer. In methodological terms, we used micro-level data to investigate macro-level constructs like responsibility, blame, and emotion. We followed, as Holt (2002) describes it, 'the logic of the extended case method (ECM)'. This method, created by the Manchester School of social anthropology, is a favored technique for exploring general and global questions with respect to markets and cultures. The method relies heavily on *interpretations* of phenomena that have been observed or registered using, for instance, field observations or interviews. It is, therefore, termed 'hermeneutic science' or 'reflective science' and can be positioned opposite to positive science. Within sociology, the extended case method has been applied in ethnographical studies by, for instance, Burawoy (1998). Holt (2002) used this hermeneutic approach to build a dialectic theory about consumer culture and the role of branding, by interviewing and observing consumers intensively and describing what brands mean in their daily lives. The ECM method is, therefore, not a data-gathering technique but an analytical logic to construct fruitful extension of theories. Despite having characteristics in common with the more classic forms of case study methods, the ECM method allows interviewees to tell their own story and the researcher moves from the micro (singular) to the macro (general), expanding or refining existing insights. To be as close as possible to the daily practice of the interviewees, to build a trustful relationship, and to create an informal atmosphere, we held three consecutive interviews with each of the supply chain members and took a plant tour where applicable and possible.

Interviewees

Interviews were held with company executives in 4 supply chains that produced the products that were used in the focus groups: vegetables, frozen foods, ready-to-eat meals, and chicken (see Table 3.1). In all 12 companies, 3 consecutive interviews were held with the (same) person responsible for the food safety policy. In the small companies, this was most often the general manager or owner; in the larger corporations, it was mostly a staff member or a functional director. The company was either producer,[3] supplier to the producer, or retailer.

TABLE 3.1

POSITION OF THE COMPANIES IN THE SUPPLY CHAIN

	Supply chain of:			
	Vegetables	**Frozen foods**	**Ready-to-eat meals**	**Chicken**
Position:				
Supplier*	Company 1 (A)	Company 2 (B)	Company 3 (K)	Company 4 (L)
Producer	Company 5 (X)	Company 6 (Y)	Company 7 (C)	Company 8 (D)
Retailer	Company 9 (G)	Company 10 (F)	Company 11 (E)	Company 12 (H)

* The supplier delivered to the producer

( ) = interview code

The first phase of the selection of respondents consisted of selecting producers of the selected product groups. From the first wave of four producers approached, two producers refused to participate. Four producers were finally found, one in each product group, who were willing to participate. The first interviews were conducted with these four producers. In these interviews, each producer was asked to list two supplying companies and two customers. One supplying firm and one customer (retail firm) were approached. The firms agreed to participate, provided anonymity was guaranteed and information would be dealt with in a confidential manner. Each interviewee had to comply with several characteristics: they should be employed at the organization for at least one year or should be the owner; they should be responsible for or involved with the food safety policy and quality assurance; and they should be in contact with the other companies from which people were interviewed.

Data collection

The primary aim of the *first* interview was to speak about food safety, food safety incidents, and how companies responded to food safety incidents. Also, hypothetical food safety

[3] For clarity, we reserve the term supplier for the channel member who deliver raw materials or processed ingredients to the producer. Of course, the supplier also produces or farms.

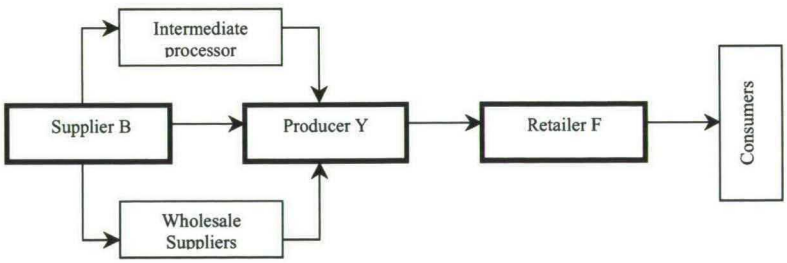
incidents were assessed, similar to the procedure we followed with the consumers and experts. The objective of the *second* interview was to collect information about cooperation in the supply chain with the other channel members interviewed, upstream and downstream, regarding food safety, and to acquire understanding of the food safety policy of the company. During the *third* interview, remaining aspects of the food policy were discussed by projecting other possible points of view on food safety, like why companies sometimes seem to respond in different ways than expected. In total, 36 interviews were held, each lasting approximately one to one and a half hours. Each interview was recorded on tape and typed out verbatim

Analysis

A content analysis was conducted, using the software program *Kwalitan* to identify recurring themes and opinions, within the five subjects we spoke about with the interviewees: (1) views on food safety; (2) food safety and the product groups involved;[4] (3) food safety policy of the company; and (4) responding to food safety incidents. The judgments of the food safety incidents were also analyzed and compared with the assessments made by the consumers and the experts.

3.2 Case 1: Frozen foods

FIGURE 3.1
THE FROZEN FOODS SUPPLY CHAIN*



Product category

Frozen food products are sometimes ranked among the convenience foods because their preparation costs the consumer little time and effort. This product category features a great

[4] Frozen foods, vegetables, ready-to-eat meals, and chicken.
* Figure made by Reijnen (2004).

diversity of products, such as frozen vegetables, ice cream, snacks, meals, and fish. A shared characteristic is that the products have to be defrosted prior to consumption. Frozen food products are generally subdivided into singular and composed products.

Supplier B

The supplier is an internationally operating company that operates in the food industry and is specialized in the production of both pork and beef. The company is involved in every step of the production process. Its main activities are supply, production, and sales. The company has 5,000 employees, allocated across 17 production facilities at home and abroad. Since 2002, the company has been part of an even larger, also internationally operating corporate group. Interviewee B is one of the directors of the company and is responsible for quality assurance and food safety in all divisions. He joined the company shortly before the start of the study, and worked previously at the faculty of veterinary science of a Dutch university. Interviewee B is an expert in his field and is, therefore, liaised with the university as a professor occupying an endowed chair.

Producer Y

The producer is market leader in frozen food products, encompassing a broad spectrum of products. The company, part of a worldwide-operating multinational, strives for a strong branded-articles approach. Private labels are produced as well, but their importance is declining. The maintenance of brand reputation and product quality plays a significant role. Interviewee Y is quality assurance manager of the company; at the time of the study, she had been working there for more than 15 years. She knows interviewee F personally; they were colleagues for several years. This makes their professional relationship unique.

Retailer F

The retailer is a large supermarket organization within the Netherlands. In addition to branded articles, a broad package of own brands is offered. The organization performs a professional marketing approach. Quality policy and the assurance of food safety are given high priority. For these reasons, the organization has an extensive quality assurance division. At the time of the study, interviewee F had been working for the retailer for thirteen years. His expertise is strongly based on experience. Owing to his function as quality assurance manager, he has contact with many suppliers. Before he joined the retailer he worked for producer Y and was a colleague of interviewee Y.

Results

Views on food safety

The interviewees stated that food in the Netherlands is safe to very safe. The low rate of incidents with food products was used as a parameter to support this opinion. The large interests of the food industries that are at stake, as well as the expanded technical knowledge about characteristics of food ingredients, were mentioned as major drivers of the increased attention given to food safety issues. To retailer F, food is primarily 'emotion', which makes it, in his opinion, difficult to react properly when a food safety incident happens. In his view, the media exaggerate food safety incidents, and food safety seems to be an easy target for making entertainment:

> '... because if all newspapers write that, let's say, the hormones in pork are harmful, then try to stand up as a scientist and say 'no, there is no risk anymore' *(retailer F).*

Retailer F feels that consumers erroneously associate food safety with other phenomena like buying organic food products, a misunderstanding that in his view is difficult to redress:

> 'Most people think that organic automatically means healthier. But it has nothing to do with that...it is so difficult to rebut in a rational way certain things and certain misunderstandings, which you can support scientifically...people don't want that at all; they have their personal prejudices and you can't oppose those prejudices with ratio; emotion always wins from ratio' *(retailer F).*

Supplier B put food safety in the perspective of the desire of people to live longer. His approach to food safety is primarily based on his scientific knowledge of health and nutrition, and seems to represent a rather technological view. He supported his opinion 'that food is safe' using facts like the low number of incidences and low morbidity rate. On the other hand, he also expressed a more philosophical view on safety:

> 'Safety is a relative concept, which means it changes with the norms and values we attach to the term safety, and these norms change over time. Food products are very safe in the Netherlands when we take the number of incidents as a yardstick or the chances of becoming sick, or the occurrence of food-related diseases. But safety is a relative term. We want to live longer and longer, but we can only realize this by adopting a healthier life style and eating more healthily, and that is what we do; more healthy food is one of the most important reasons for a longer life-expectancy, alongside better medical care, but healthy food is a dominant cause; it implies that our requirements for the safety and quality of food products are becoming higher and higher. But nutritional quality is far removed from safety in the

> perception of people; people focus on safety; and our wish to live longer means our requirements for the safety level of food are increasing' *(supplier B).*

Producer Y also holds the opinion, as an expert, that food is safe to eat, but in her role as consumer, she sometimes has doubts:

> 'Food in general is safe I think. However, I notice myself that when I am in a situation where I am extra vulnerable, like during my pregnancies [the interviewee was at that time pregnant], that I am less sure about it. In that sense I have some doubts' *(producer Y).*

Food safety and frozen foods

Food is safe to eat, but the interviewees saw differences between product groups. Supplier B argued that meat (a major ingredient in the snack products of producer Y) is in evolutionary terms closer to humans than plants; as a consequence, pathogens that occur in animals can also occur in humans. Food based on meat is, therefore, more vulnerable. But meat is also perceived as a distinctive product group for other reasons, according to supplier B:

> 'Meat is still not perceived by most consumers as normal food...a relationship between meat and religion can still be found in a number of religions. Meat has, in addition to its value as a food product, a certain value that is difficult to see through. Why do you buy meat and not tofu or other soy products? That is culturally determined. It has to do with taste, with our desire to vary' *(supplier B).*

The interviewees believed that frozen foods are perceived by consumers as safe to eat, as there are clear and directly observable cues that signal possible product defects (defrosted product).

Food safety policy

All three interviewees represented large companies. Because of their large size, the companies had specialized internal departments for food safety matters, implying a high level of technical knowledge. All interviewees realized this capability put them in a more favorable position relative to smaller companies. All three companies had strict policies and regulations for inspection of incoming and outgoing products, as well as for processing. Food safety was perceived as an area of growing importance because of the progressing knowledge of the good and harmful properties of food ingredients, the increased strictness of the requirements imposed by the (European) government, the sensitivity of the subject, and the aging population. Supplier B stated that the food industry in general should pay more attention to

the vulnerability of specific consumer groups to certain food ingredients and should adapt product development programs to this vulnerability:

> 'There is three to seven times as much Salmonella in free-range eggs as in traditional eggs. Therefore, there is a risk in serving free-range eggs in nursing homes. That is not good. It is unadvisable to use free-range eggs in hospitals and nursing homes. We also need to communicate that as a society and make it clear to the consumer; but we do not dare to do so. We do not talk about it. It is only clear in scientific circles that you can gain enormous health benefits in terms of years of life if you handle the issue differently...we have to focus on the areas where substantial health benefits can be gained. The best example is Campylobacter; in the Netherlands, between approximately 100,000 and 215,000 cases of Campylobacter-induced incidents are registered, mostly originating from poultry. If we were able to reduce the number of illnesses we would gain substantially' *(supplier B).*

All three interviewees had been involved in some kind of food safety incident, mostly relatively mild incidents like the finding by consumers of a foreign object in a product, but some had also felt the impact of affairs like the Dioxin crisis, MPA, and animal diseases. A crisis plan was available in their company. The central element in the plan was the recall procedure, intended to prevent - first of all - damage to consumers. In the process of deciding whether or not to recall a product, several factors are taken into consideration: for example, the chances of possible harm to people or animals, the precautionary principle, the proportionality of the measures taken, financial considerations, and possible effects on reputation. Supplier B added as an additional factor the (legal) personal liability of board members.

> 'It is necessary that it become transparent how important decisions are taken. What comes into play as well is the accountability of the Board of Directors. I think that this will play a more and more important role in the control of food safety...the individual accountability of board members plays a very big background role' *(supplier B).*

Economic costs resulting from recalls were not seen as an issue in decision-making. The interviewees expected that smaller companies would not be in such a favorable position as they not only lack the specialized resources and manpower, but are also forced to consider economic aspects more. But because of their greater capabilities, large companies cannot excuse themselves using arguments like having insufficient knowledge.

> 'Large companies are in any case obligated [due to the precautionary principle] to have an infrastructure which enables them to build skills and knowledge. And that is less clear for smaller companies. Big companies which have the infrastructure, the people, the knowledge, and the skills cannot say that they did not know what to do and how to react' *(supplier B).*

Food safety was also found to have a positive side effect. For instance, supplier B posed that food safety incidents accelerated a change in the food safety policy of his company that was beneficial to their commercial strategy.

> 'If you would ask Unilever about our image they would say our image has changed substantially in the past two to five years' *(supplier B).*
>
> *Interviewer*: But what has changed?
>
> 'The strategic change was about our policy on food safety incidents. I think that in crises like the NPA crisis and the Nutrofeen crisis, which were not at all small crises, we operated much more according to the precautionary principle. In those cases we blocked much more product than the government wanted, and we blocked them even before the government requested it. And we had not done that before; we were much more reactive before, and now we had an important collective component. But we had a lot of discussion in the top of the organization, but that is where it belongs' *(supplier B).*
>
> *Interviewer*: Does that mean food safety incidents have had a positive side?
>
> 'Yes, we used this positively in our commercial approach. One of our most important domestic customers was able declare immediately to his customers that there was no danger' *(supplier B).*

Responsibility for food safety

Supplier B and retailer F agreed that securing food safety is a shared responsibly. Supplier B and producer B, both large companies and relatively independent, try to connect their production processes in such a way that the chances of food safety incidents occurring is minimized. Producer Y, however, had a different opinion about responsibility for food safety. She posed that every channel has its *own* responsibility. She felt that retailers increasingly dictate their 'wishes' with respect to food safety to their suppliers, arguing that the retailers have the final contact with the consumer. She thinks her company, like many others, is dominated by the market position of retailers, in particular retailer F; therefore, she does not consider their relationship to be as successful as it could be, because of the inequality in the relationship.

> 'Retailers just dictate what has to happen, if they are given the chance. And we do not really like to be dictated. Therefore, there is a constant struggle for power between retailer F[5] and the food producers; in particular retailer F but also to a lesser extend other retailers, claim to be the protector of the consumer, a role we think is not always justifiable' *(producer Y).*

She also questions the channel conductor's role that is claimed by retailers. She doesn't believe in the sort of leadership role where one part takes the whole chain problem on his shoulder.

> 'The supply chain is as strong as the weakest link. Of course, they [the retailer] have the first contact with the consumer. So they have to perform a certain information-giving role. And of course they have an obligation to keep their own system in good condition...but they are the ones who like to act as channel conductor. And that is, I think, one step too far. They don't have to be the conscience of the consumer...both they and we have contact with consumers. I mean, that gives us both responsibility' *(producer Y).*

Retailer F and supplier B seemed also to make use of coercive power when it comes to, for instance, forcing a supplier to withdraw a product from the market (retailer F) or forcing pig farmers to comply with food safety regulations:

> 'When it [the incident] concerns a manufacturer's brand then we assess a possible negative effect on our image; when it is, for instance, a brand of Unilever then an incident will have such an impact that we advise them to withdraw the product. And if they don't, we do' *(retailer F).*

> 'We have a monitoring program to control for the presence of antibiotics. A half percent of all the pigs are controlled, and if we find unacceptable residues the supplier [the pig farmer] gets a warning. And if he makes that mistake again, then he is excluded as a supplier' *(supplier B).*

All interviewees relied on the information exchanged among them with respect to food safety, like quality reports and certificates. Retailer F warned against overvaluing of what he called 'certification of trust'. He strongly believes in personal relationships as the basis of trust, and refuses to build trust only on certification. He relies on personal trust built on knowing people personally; this is advantageous, for instance, when a decision has to be made about whether or not a product should be recalled.

[5] The name of the retailer was mentioned.

> 'When I have a relationship with a supplier that is not only based on paperwork and certificates, then I am able to put his words in the right perspective. When I call Greta[6] [the quality assurance manager of supplier Y] in the event of a crisis then I don't have any doubts, not for a second. But if I call the quality assurance manager of company XYZ and this man says 'No, we have never had such a problem' then I have to consider if I can trust him. And I can't, because if I do not know him, or his way of thinking and how this fits with his company, then I am unable to put his words in the right perspective; but to be honest my point of view on this [the value attributed to personal relationships] is losing ground. We are inclined to build structures that are controlled with systems like BRC, HACCP, IFS, or whatever. So we build systems that enable us to ask somebody only, "Are you certified?" It is like having a swimming certificate: it says you can swim. I do not control it...but I still think you can only build a concrete foundation by a personal relationship. You can certify all kinds of things...I attach importance to a personal relationship; when I have seen somebody or spoken to him, then I talk in a different way to him on the telephone than to somebody I have never seen or whose company I don't know, even if he has the best certificates in the world' *(retailer F).*

Responding to food safety incidents

Incidents are registered in all three companies and classified from simple and harmless quality defects up to incidents necessitating admission to hospital. Consumer complaints are handled by reimbursing the purchase price (retailer), sometimes with an additional gift, or a free product is supplied (producer). All interviewees stated that a crisis management plan existed. In this crisis management plan, consumer protection is the primary objective; all measures are concentrated on this objective. Protection of business interests is the next objective. Some incidents, like discovery of a foreign object in a product, are found to be easier to explain than complex issues such as the presence of dioxin in food products. One of the most difficult elements experienced in crisis management is when, and to what extent, information should be supplied. It is a fragile balance between what one participant called *'not to cause panic, but yet to be loud and clear'*. To admit responsibility for an incident is another delicate issue. Legal aspects and the threat of possible claims cause companies to withhold from accepting responsibility. Producer Y, for example, only accepts responsibility if it is crystal clear they are responsible.

> 'As long as it is unclear what caused the incident: don't accept responsibility. As soon as it is clear that we caused the incident: admit responsibility.... The first instruction that we give to someone from our company who is going there [to the place of the incident] is to 'record the situation adequately'. Record it in picture, etc., etc., say that we are sorry and that we are aware of the unpleasant situation but do not

[6] Fictitious name.

admit any responsibility. And that has to do with avoiding being held accountable. I mean in this first phase ...' *(producer Y).*

Also the complexity of supply chain and the variability of raw materials are factors that prohibit formulation of a simple answer to the question of responsibility:

'Where it is legitimate we do that [to admit responsibility]. When it is disputable then it is investigated first. We cannot give a 'zero-risk' guarantee...that has to do with the complexity of the story. We never give a 'zero-risk' guarantee. That has to do with the quality of the product. And meat is associated with more than 'zero-risk'. We communicate that message continuously to our customers. If they ask for a 'zero-risk' guarantee they will not get it' *(supplier B).*

Retailer F found that in case of food safety incidents, suppliers sometimes prioritized their own interests, for example, in case of a product recall. This behavior is driven by the wish to keep the direct costs as low as possible.

'In case of a recall you have to withdraw many products; selecting which products can still be used and which not can be handled afterwards. But you cannot do it in small steps, like Nutricia,[7] where the managing director was on the news every day with a new production code and stated, 'This production code also has to be withdrawn' and 'Products with that code should not be eaten', three consecutive times. That is really terrible ... Some producers are inclined – and I don't blame them, it is human – to take a defensive position first. They first try to keep the problem as small as possible because they have the idea in the back of their minds 'If I tell everything now than the damage will be immense'... but you have to cut deep at that moment and should not think of costs' *(retailer F).*

A defensive strategy can also result in placing the blame on others. The strategy of 'scapegoating' others has negative effects and is, therefore, not a recommended strategy (Coombs 1998; Coombs 2002; Coombs and Holladay 1996; Hearit 1994; Hearit 1997; Hearit 1996). Denial and resistance, however, appear to have only a small chance of success, and a scapegoat is often used. As Douglas (1995) posed, scapegoating others is often the result of perceived strong tension caused by a crisis. Although scapegoating is a universal phenomenon and has always been done, the diminution of feelings of belonging to a group, the almost instant access to information, and the non-acceptance of people of having to wait for explanations of events are marked as stimulating factors for scapegoating as public behavior (Douglas 1995). Supplier B, when talking about an incident with MPA in the food

[7] Retailer F referred to an incident in which the company had to recall baby food because of contamination.

supply chain, said he found it difficult sometimes to resist the inclination to pass on blame. As the MPA incident was caused by contaminated cattle feed, a public discussion arose about who was to be blamed, as the contamination was at the roots of the supply chain.

> 'I think supply chain partners should understand consumers' questions about food safety and take that permanently into consideration in their communications about food safety ... in their present communication approach quite often, in particular in the first phase of a crisis, too many elements are there that have to do with passing blame on to others. This is what you see in society and in politics, but the consumer is not at all interested in the quarrel between the parties. The consumer is more interested to know if the potato that is sold is safe...the consumer is fed up with that behavior [blaming others], so we as professional partners should not do that any longer, but from the other side, to openly identify yourself as having a problem is still an enormous step for each link in the chain...it also has to do with the legal attribution of blame, like 'it is your fault'. It [the legal approach] makes the problem even bigger. It is annoying, in particular for an export company; then you want to keep your name out of the circuit because the outside world only sees what is published on the level of the '*Telegraaf*'[8]' *(supplier B).*

Summary

In sum, the interviewees share similar opinions with respect to the safety of food products. Food in the Netherlands is very safe to eat in their opinion. However, food safety is a relative concept, which is loaded with emotion, and consumers' perceptions do not necessarily reflect the inherent technical status; concern about food safety should be perceived within the context of people's desire to have a healthy and long life, as one interviewee concluded. Frozen foods are also regarded as safe, as some quality defects can be observed quite easily. Food safety policies are formulated in much detail within the companies; specialized knowledge is a strong capability of each company, making it possible to assure food safety and quality between them and creating interdependence. Simultaneously, however, their specialized knowledge makes the companies vulnerable, as ignorance can't be used as an excuse in case of a food safety incident.

Despite common interests, shared objectives concerning food safety, and satisfying reciprocal relationships, the use of coercive power in relationship is a reality. Use of power is materialized through position in the supply chain, expertise, and purchasing power. Monitoring programs for quality and safety are used to orchestrate the behavior of cattle breeders, whereas positional power is used to enforce cooperation of an unwilling supplier in recalling products. The claims about channel conductorship based on this positional power in

[8] The most popular newspaper in the Netherlands.

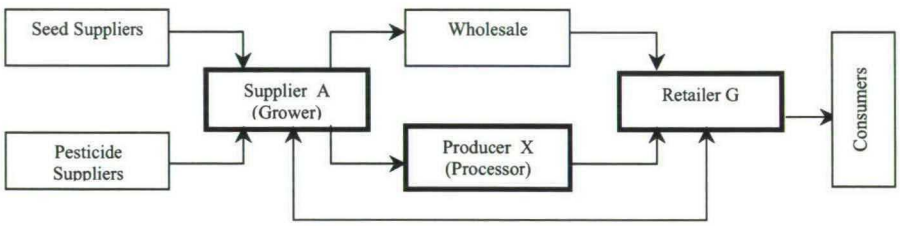
the supply chain were challenged. Trust that products are produced according to food safety standards is mainly materialized through certificates and quality reports. According to one of the interviewees, however, too much reliance is put on this form of institutionalized trust; in his opinion, it can never substitute trust in persons, based on personal experiences.

Individual complaints of consumers concerning food safety incidents are handled in an accommodating way. Detailed crisis plans are available which describe how to respond. Whether or not responsibility for a food safety incident should be admitted, and if so, when, is a delicate issue. The costs of claims based on juridical responsibility and the costs of reputation damage in case of denial make decision-making a balancing act.

3.3 Case 2: Vegetables

FIGURE 3.2

THE VEGETABLE SUPPLY CHAIN*



Product category

The fresh vegetables chain comprises unprocessed as well as processed vegetables. Until recently, vegetables were usually cooked uncut. The processing was subsequently done by the consumer at home. The concept of cutting and prepackaging vegetables has nevertheless increased greatly owing to consumers' demand for convenience. Within the category of fresh vegetables, there are different sub-categories, such as organic vegetables. As a result of climatic circumstances, large quantities of vegetables are imported.

* Figure made by Reijnen (2004).

Supplier A

The supplier is a cultivator specialized in the growing of iceberg lettuce, accounting for 90% of its production. It is a family business dating back to 1979. The company evolved into the principal cultivator of iceberg lettuce, exporting to the UK, Italy, and Scandinavia, among other countries. The interviewee is the owner of the company. He is strongly committed to his job and invests time in increasing his knowledge about the business by visiting foreign growers all over the world during his holidays.

Producer X

Producer X is a large, family-owned organization operating in the primary sector. The producer was founded in 1990 and is one of the Netherlands' main vegetable-processing organizations. The organization is divided in two divisions, one directed towards retail, the other to bulk consumption. The producer provides a range of about 80 fresh or fresh ready-to-eat vegetable products. The producer is HACCP and ISO9002 certified and about 85% of its products are sold under the *Milieukeur*[9] label. The interviewee is one of the owners of the company.

Retailer G

The retailer is a supermarket chain in privately-owned hands. The company started out as a wholesaler for groceries in 1921. The first supermarket opened in 1983. Until shortly before the study, the retailer's main market was formed by the three Southern provinces of the Netherlands, but her successful strategy allowed the retailer to expand its territory. Its goal is to be present all around the country and gain a market share of 3% in the coming five years. The interviewee is responsible for the product group fruit and vegetables.

Results

Views on food safety

The interviewees stated that food products in the Netherlands are safe to eat. Comparisons with other countries were made to support this opinion. Food safety is in their opinion merely an emotional issue; they can understand that the level of consumers' trust is sometimes low; simultaneously, they regret that people don't accept the technical state of affairs. Producer X

[9] The ' *Milieukeur'* is a registered hallmark (www.milieukeur.nl). Its objective is to stimulate the process of sustainable and environmentally friendly ways of farming and production. Certified products comply with higher than legal norms for food safety, animal friendliness, and environmental protection.

believes that the industry is to blame for not communicating in a proper way with consumers about food safety.

> 'Food is emotion. And yet, I think that the distrust of consumers, which arises from communication like that taking place in the press, how it handles food scandals and problems, even alleged problems, is worse than the reality. Let's put it like this: the perception is worse than the reality' *(producer X).*

> 'When it comes to food safety we are not doing badly. We can't afford to do badly as we are an export country par excellence' *(supplier A).*

> 'Our food is safe due to the high norms we impose on our farmers; but we simultaneously face a vanishing of norms due to the upsizing of production' *(retailer G).*

Supplier A, who is highly committed to his work as a farmer and visits colleagues worldwide, fulminated against the differences in Europe with respect to the allowed use of pesticides and the presence of residues:

> 'When I compare that [the Dutch] policy to that of, for instance, Spain, than we track down products [pesticides] we have not been allowed to use for more than ten years here…I saw it when I visited one of them [a processor of oranges] : the oranges came directly from the trees of the grower, in large crates; they were put on a large conveyor belt to be sorted. A large tank marked with a death's-head was near that belt. Chemicals (cupper) were spread on the oranges to make them more appetizing. It is unthinkable that we would do this in Holland' *(supplier A).*

Taking oranges from Spain as an example, supplier A posed that consumers' assessment of food safety is mainly a matter of affection; oranges from Spain are associated in the consumer's mind with pleasure, warm and sunny weather, fun and holidays; the knowledge about the presence of pesticides on imported oranges is lacking or ignored. He also strongly holds the opinion that the media influence to a great extent public opinion on the level of trust people have in the safety of food. He blames the media for not providing relevant background information and reflecting an unbalanced opinion.

> 'When I see how certain newspapers focus on some incidents then I sometimes think 'what a commotion'. Quite often with very little background information, it's announced in bold headlines that strawberries are poisoned. I know somewhat more about the background, as I am a farmer myself, but I can understand that a consumer who lives on the third floor in the middle of Amsterdam and who

> doesn't have that information will believe that story. If I was that consumer and I read that then I would also believe it' *(supplier A).*

Retailer G had also noticed that breeders were frustrated by the differences in European legislation:

> 'Last year I gave a speech to a group of growers of hard fruit in *Limburg* and was overwhelmed with facts about these differences. These breeders are enraged because five kilometers away they [breeders in Germany) break the law whereas they have to comply with strong legislation' *(retailer G).*

Food safety and vegetables

The interviewees hold the opinion that vegetables are viewed positively relative to other food products, despite incidents with pesticides. They supported their view by pointing to the small number of incidents with vegetables, the relative low sensitivity of vegetables to bacterial growth, and the easy-to-observe quality cues like appearance and smell.

> 'I have never seen a person become sick from eating vegetables. People know and see products like salad become wilted and soft. They keep it in the refrigerator as long as possible. Meat is different. At barbecues people leave meat in the sun for several hours or the meat is not roasted properly. That often happens' *(supplier A).*

For retailer G, the nuclear disaster in 1986 was the only large-scale food crisis he knew that had an influence on the consumption of vegetables.

> 'Everybody still has the picture in his mind of the cows and pigs that were taken away to be destroyed[10] ... look, food safety incidents like that do not happen with vegetables, only then with the Chernobyl accident' *(retailer G).*

Food safety policies

Controlling for possible residues of pesticides, the presence of foreign objects, and possible microbiological or chemical contamination of the product are in general main elements in the food safety policy. The policy also includes hygiene codes for those working on the farm and registration of the use of pesticides, data about seeds, and data on harvesting, as part of the

[10] The respondent referred to the mass destruction of animals to prevent further dissemination of animal diseases.

program 'Sustainable Agriculture'.[11] Sometimes the costs of preventing possible risk, the assessment of the risk, and the effectiveness of precautionary actions, need to be balanced, as a full guarantee of safety cannot be given. An example is the case of a complaint about a cigarette tip in vegetables, which contaminated the vegetable with nicotine:

> 'We took a look: Where did it come from? The filter probably got into the crop on the field after we checked it and we found that it had undergone an entire process. It must have come into contact with raw materials. And that has to do with the farmer; it will be added to his contract that he and his personnel are not allowed to smoke in the field. However, the field is right next to a cycling path. So, do I have to put up a fence to prevent cyclists from throwing cigarette butts and glass or cans into the field?' *(producer X).*

Supplier A expressed the view that, because vegetables do not generate many incidents, this product group does not receive much attention from the retailer as far as control of temperature is concerned. He assumed the storage temperature would often be too high as a consequence of that attitude.

> 'The storage temperature of meat is not a problem. They [the supermarkets] pay sufficient attention to meat, because they see it as a bigger risk. But the storage temperature of vegetables is a problem. That was found in a survey recently. They [the researchers] found temperatures of more than 20 degrees' *(supplier A).*

Because of the type of food it is, incidents within the supply chain are relatively mild and concern mostly foreign objects in products. Producer X, who also exports pre-cut vegetables, arranged a trip for a consumer from Iceland to the Netherlands, to visit his firm and to see for himself what precautionary measures he takes to secure food safety. The consumer had found a young mouse in one of his products. Producer X had taken that complaint very seriously:

> 'Look, a band-aid in a packet of vegetables is something different from a newborn mouse. The traumatic effect of that is much greater isn't it? And I think you have to react as if it should be. It's a matter of empathy' *(producer X).*

Producer X believes that the level of involvement with the final consumer is a factor that influences how firms deal with food safety. He has experienced a significant change of attitude towards buying-selling relationships over the last fifty years, and has evolved from

[11] The *'Kwaliteits project Akkerbouw'* (quality project for arable farming).

having a transaction orientation to building more enduring relationships. He illustrated this by referring to an old saying that dominated buyer-seller relationships for decades: 'Fish is not for eating but for trading'; the mentality was to sell as much product as possible, without caring too much about aspects other than price. This approach has changed and interfirm relationships are guided now by public opinion on societal responsibilities and corporate governance. Producer X believes that companies can be categorized on the basis of their level of involvement with the final consumer. Those supply chain partners who have direct contact with the final consumer are more involved and pay more attention to issues like food safety. This, in his opinion, explains how food scandals like the ones in the cattle feed industry can happen.

> 'The further you are removed from the consumer, the more you are inclined to think, ' Ah, why do they worry?'. It's a slightly paternalistic way of thinking: 'It is not so bad for them [the consumers], so there is no need to tell them. I decide myself what is good for the consumer or for my customer '. Suppose I have some residues in my product, for instance, 600 units of nitrate instead of 500, which is the norm, and this higher level is really a once-occurring event...then you may think as a producer, 'That norm was1000 two years ago, so who cares; you can make a lot of noise and recall products, but finally it only gives you a bad name' *(producer X).*

Responsibility for food safety

An important tie that binds the supply chain members in their cooperation is the '*Milieukeur'* hallmark on the vegetables they provide. The interviewees share responsibility for complying with specific quality and food safety regulations from 'farm to fork' in order to be allowed to use the hallmark. As a consequence, the cooperation is relatively intense and the relationships relatively close. In particular retailer G is very enthusiastic about this relationship:

> 'The result of the cooperation is that I participate in their [the producer's] product development team, and that I know their production process; we have a very close relationship as far as *Milieukeur is concerned.* We exchange a lot of information even about our margins, they help us in making shelf location plans, and we jointly participate in research...there is no other supplier with whom we have such strong bonds. We therefore don't have much discussion about who is responsible for food safety. We are simply all responsible' *(retailer G).*

The supplier also experienced the positive effects of the introduction of the hallmark:

> 'Cooperation [with the producer] goes much better now. First it was always, 'We are the buyers, and there are the little farmers ... go back to your corner and listen'. Fortunately, it is completely different now' *(supplier A).*
>
> *Interviewer:* Why did you say so explicitly 'little farmers'
>
> 'Well, they approached us saying, 'If you don't want to listen...there are many others who want do it [to be a supplier]'. But through *Milieukeur* we are now bonded to each other, also with respect to food safety' *(supplier A).*

As a result of this common interest, the interviewees did not differ much in opinion about the responsibility for food safety. Both producer X and supplier A, however, felt the retailers in general set the 'rules of the game', referring to introduction of the BRC code and Eurep-Gap. They felt that retailers are in general the most dominant actors. Supplier A remembered a specific situation:

> 'There was a powerful buyer from *Laurus* who had a discussion with the vegetable growers in the *Westland.* Those market gardeners always shouted 'We only get 15 cent for a crop of lettuce, and you are selling it for 1 Euro in the supermarket. That is not honest'. The buyer of the Laurus group said, 'So what? Well, then go sell it yourselves'. That was the end of the discussion. They [the supermarkets] simply have the power. I have contacts with many companies in the canned food industry, and with processors of vegetables in the frozen food industry, and it is the same story everywhere; regardless of whether you're dealing with Unilever or Philips, their salesmen state their prices in a well-behaved way and that's it. The big supermarkets run the show' *(supplier A).*

For producer X it is almost impossible to ignore the market position of retailers. This position plays an indelible role in his view and underlies the use of coercive power, in particular by retailers:

> 'Partnership to me is nothing but "win-win"; when there is no "win-win", then just stop it. But the supermarket is the one who has the most solid contract; he [the retailer] is the one who punish you' *(producer X).*

The interviewees did not differ greatly in their opinions on responsibility for food safety. The specific regulations they have to comply with in order to be allowed to use the *Milieukeur* label seemed to function as a strong formal motivator. Not withstanding that, producer and supplier found that retailers in general use coercive power based on their position in the

supply chain to get favorable conditions or to force compliance with specific regulations. Financial penalties and potential claims are perceived as reasons, too, for firms not to accept responsibility for harm caused by products. Producer X and retailer G have clear opinions about accepting responsibility in case of a food safety incident:

> 'I am responsible, because my name is on it [the product], it is my business and that has nothing to do with legal accountability. That's something different ... accountability is something we will figure our later. That's something for the lawyers to do' *(producer X).*

> 'We accept responsibility. We feel responsible for the whole story. As a next step we put the responsibility at the desk of the producer if he is to blame, but initially we say 'ok, we sold the product, we did that, we are responsible. Period. ' Later on we examine how it happened. But we don't discuss this with customers; that is our policy, the customer is always right. Even if you feel he [the customer] takes you for a ride so to speak; even then that customer is right' *(retailer G).*

Responding to food safety incidents

Retailer G registers number and types of consumer complaints and, if applicable, he informs producer X. Producer X modifies procedures in his company if requested to do so. Retailer G reimburses the purchase price to consumers who complain, without discussion. Depending on the opinion of the local supermarket manager, a gift is sometimes added as compensation for any inconvenience. Protection of the consumer's health and maintaining the relationship with the customer are the principal objectives in the crisis plan of producer X. In this plan, only the headlines are formulated; experience should do the rest. Neither retailer G nor supplier A has a specific crisis plan. The decision to recall products is not an issue for the interviewees; if necessary they will recall products immediately. However, they can understand that supply chain members sometimes hesitate to recall products for reasons of reputation and cost. They believe that costs, on the one hand, and the chances of defects being traced back to them as perpetrators, on the other hand, are sometimes weighted against each other.

> 'I think emotional motives prevent them [producers] from recalling products. Because they may think it will bring damage to their reputation, and there is also the financial aspect. Because it may cost them a lot of money. I think certainly some people find it hard to admit they have made a mistake; they may think, 'Maybe it will blow over'. And then there is always the consideration, 'What are the chances it will be discovered, that there will be a complaint' *(producer X).*

Summary

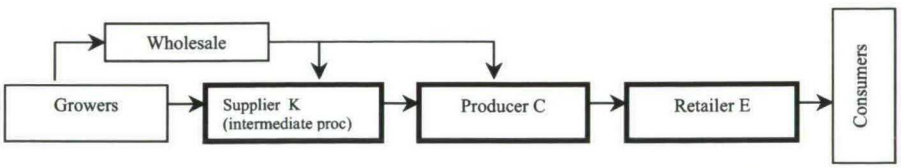
The opinions of the interviewees did not differ concerning the safety of food products and vegetables: food is safe to eat, in particular vegetables. Criticism was articulated about the 'softer' food safety rules in other countries, which were seen as dishonest. Also, food safety regulations were sometimes perceived as exaggerated and almost impossible to implement. The effect of the media on the perception of food safety was seen as considerable; it was felt that correct information is not always provided. As a result, people might be more negative than is necessary about food safety or the precautionary measures supply chain members take. Food safety policies were not formulated in great detail; it is primarily tacit knowledge that exists in each organization. Tacit knowledge is developed based on personal experiences, skills, and attitude. However, the *Milieukeur* label requires, in particular for the supplier, compliance with specific regulations; it provides the supply chain members with explicit monitoring standards. The *Milieukeur* label is also a strong tie that bonds the supply chain members. It was suggested that the larger the distance from the final consumer, the more a supply chain member might exhibit paternalistic behavior.

The interviewees did not differ greatly in their opinions on responsibility for food safety. The specific regulations they have to comply with in order to be allowed to use the *Milieukeur* label seemed to function as a strong formal motivator. Not withstanding that, producer and supplier found that retailers in general use coercive power based on their position in the supply chain to get favorable conditions or to force compliance with specific regulations. Because of the low sensitivity of vegetables to contamination, the number of experiences with food safety incidents was minimal. If products should need to be recalled, all stated that they would not hesitate to do so. Nevertheless, the interviewees said they could imagine why other companies may hesitate to recall products because of the costs involved, expected low chances of a defect being traced back to them, or an optimistic view that the incident would 'blow over'. Acceptance of accountability in the event of a food safety incident did not seem to be a real issue. The retailer accepts responsibility and never enters discussion with a consumer about the causes of an incident. The producer holds the same opinion as his name is on the product.

3.4 Case 3: Ready-to-eat meals

FIGURE 3.3

THE READY-TO-EAT MEALS SUPPLY CHAIN*



Product category

Ready-to-eat products belong to the category of so-called convenience foods. Convenience foods comprise a broad category of products, which frequently replace the standard meal. A characteristic of these products is that they can easily be prepared in just a few minutes by reheating them, or they can be consumed directly, like a sandwich. Ready-to-eat products are often offered as cool-fresh products. The category is growing quickly in size and involves a relatively high risk in terms of food safety. Salads do not belong to the convenience foods category in the strict sense. These products do, however, have a number of characteristics common to products in this category: they are ready to consume, are composed of several components, and ought to be kept refrigerated.

Supplier K

The supplier is a family business, founded in 1950. The most important activity of the business is the cutting of vegetable mixes. These are delivered to different buyers, primarily situated in the Netherlands (to retailers, the catering industry, and canteen kitchens), for further processing in salads or meals, for instance. The original activity of supplier K was the wholesale of vegetables, but the business has become focused on the processing of vegetables. Supplier K has about 45 employees, of which 30 are full-time employees; the exact number, however, is dependent on the season. Producer C was the first buyer of the vegetable mixes. The firm is situated in the immediate neighborhood of producer C. The interviewee is one of the two owners of the firm. The interviewee develops his skills mainly in practice.

* Figure made by Reijnen (2004).

Producer C

The producer is the market leader in the market for salads in the Netherlands. In 2003 the organization was acquired by a large pan-European chilled convenience food group that delivers to retail and food services. The Dutch division hosts around 700 employees in four production sites, of which two produce the producer's brand. Production is directed towards the Dutch market and affiliated companies. The interviewee is director of R&D and Quality Assurance. His background is in food technologies; at the time of the study he had been working at the company for fourteen years. Before he joined the present company he worked in the diary industry.

Retailer E

The retailer is one of the largest retail purchasing organizations in the Netherlands, and at the time of the study had been in the business for 45 years. Its market share is approximately 28%, which gives the organization much market power. Retailer E presents 17 independent retail formulas in the Netherlands, which benefit from the joint purchasing and commercial power. Private labels are also launched by the organization. The interviewee is the quality assurance manager of the organization. Before he joined the present organization three years before the study period, he worked in the food industry. The interviewee is primarily responsible for the quality aspects of the 900 private labels of his organization.

Results

Views on food safety

The interviewees said they had no doubts about the safety of food: food products in the Netherlands are very safe to eat.

> 'Food products have never been so safe; I am fully convinced of that' *(retailer E).*

> 'As long as you eat what nature gives you, then food is safe to eat, at least that is what we presume; I cannot prove it, I am not a scientist but that is what I think' *(supplier K).*

The high level of safety was attributed to the efforts made by both industry and retailers. The large numbers of variables that finally determine the safety of food products, which can only partially be controlled by the supply chain members, make it impossible to provide a 100

percent guarantee. One of these uncontrollable variables is the way in which consumers handle food products at home.

> 'Food incidents originate to a very large extent at consumers' home, on the kitchen table or at the kitchen sink. We as an industry operate in a very safe way, but we occasionally stray off the path, and that gets a lot of attention. All those crises and annoying things make us defensive' *(producer C).*

Retailer E posed that food safety has become a source of entertainment. Unhygienic circumstances in the kitchens of restaurants, cafeterias, or student houses are filmed and shown on television, and get much attention. The same applies for programs which show the industrial preparation of food products, and product claims are sometimes satirized.[12]

> 'It has a little to do with the culture in which all the commercial TV channels want to eat out of the same trough by providing extremely simple programs such as the '*Smaak Politie*'' *(retailer E).*

Retailer E believes that because of the information given in such programs consumers may become more negative about food safety practices in industry and the restaurant sector than is necessary.

Food safety and ready-to-eat meals

Retailer, producer, and supplier perceived ready-to-eat meals in general as safe products. Relative to other food products, however, they are more sensitive to food safety incidents because of their composed character and the oxygen-free packaging, which makes them a good breeding ground for bacteria. Foreign objects in products, owing to the large number of ingredients, are the main source of possible food safety incidents. Ready-to-eat salads, one of the products of producer C, are technically speaking very safe products to eat, due to the presence of acetic acid and the subsequent pH value, but these products are easily associated by the public with food safety incidents.

> 'I have never personally experienced a food safety incident caused by a salad. But public opinion is remarkably different. Of course you can become sick if you eat excessively. Your stomach may protest when you eat a lot of this cold stuff. Or perhaps a person's physical condition may not be so good, so that he can not take the product. But you can hardly blame the product for that' *(producer C).*

[12] See: *De Keuringsdienst van Waarde.*

Food safety policy

The three supply chain members have their own food safety policies, but with different levels of detail. Understandably, there are many common elements, like prevention measures, priorities in case of a crisis, procedures for contacting the authorities, and so on. Retailer E follows the general policy formulated by the branch organization, *Centraal Buro Levensmiddelen (CBL)*. His opinion is that food safety is in principal the responsibility of the supplier. However, complaints from customers are monitored conscientiously as they sometimes are, in his opinion, forerunners of possible food safety problems:

> 'I always say that one complaint can be handled, two complaints call for caution, and three complaints are close to panic. But in every case action is needed' *(retailer E)*.

Gross negligence or repeated incidents caused by suppliers are punished by retailer E with refusal of future deliveries and, sometimes, compensation must be paid for damages or costs, like the costs to retailers of withdrawing products from the shelves. Retailer E suggested that large food companies have more knowledge about food safety and have a more rigorous food safety policy. This makes them favorable suppliers. His expectations about an upcoming visit to a new small supplier were, therefore, not optimistic:

> 'Next Monday I will visit a supplier in *Coevorden*. It is an ecological farmer who is willing to supply us with some products. I am afraid of what I will see there, but maybe I can advise the man on how to handle food safety, just as I learned from them [the large food companies] how to do that; but when I visit a multinational I am always amazed by their expertise' *(retailer E)*.

Producer C noticed a strong influence of their (new) parent company on the food safety policy. He felt that the policy was somewhat exaggerated and contradicted their previous independent style:

> 'To be honest this influence is extreme...it is a tiger with respect to food safety... it [the issue of food safety] is a very sensitive subject in their environment. We were very independent, but now we have a kind of manual, but I do nothing with it; we don't give a damn: it costs a lot of money and it is a standard that would harm our competitive position if we were to follow it to the letter, that's how far it goes. You need to pay attention to many more aspects, and I don't see the benefits, and I am currently opposing it. It's really a bit like a battle of competence: we are held responsible; how we do it is up to ourselves. But from the other side, the question is to what extent I need to comply with this 'Bible'' *(producer C)*.

In the opinion of producer C, food safety incidents have resulted in a stream of rules, procedures, and certification programs that have complicated business operations unnecessarily. He thinks that in particular consultants, who perceive food safety advice as an attractive business opportunity, are accountable for making food safety policies more complex and costly than needed. At the same time, he admits firms are reluctant to trust each other and do not allow others to observe their food quality procedures.

> 'My opinion is that organizations handle their CCP's (Critical Control Points) too secretively. Whether you are a processor of vegetables, a baker, or a butcher, you are not so different in the business world; everybody has more or less the same CCP's. So, make them known to each other because it is important for everybody that you don't make a mistake. If you make a mistake it hurts others as well' *(producer C).*

Producer C found the tendency of worldwide sourcing within companies to be a complicating factor in the execution of food safety policy, for instance, when it comes to tracking & tracing of ingredients:

> 'We know very well where the potatoes we use come from. We know where they are cultivated. So we know the whole story. But if you ask me about the tuna that we source in Thailand, in which seas they swim, then we don't know' *(producer C).*

The food safety policy of supplier K is mainly based on tacit knowledge. This is a result of the organization being relatively small and the process relatively simple, and paperwork is redundant. Most information is in his mind, as interviewee K stated:

> 'Our policy with respect is food safety is not defined in detail. It starts with buying good and healthy quality products, which can be processed adequately. So food safety starts with buying. Furthermore, properly storing and keep a high rotation level…these objectives are not on paper, they are simply in my mind' *(supplier K).*

Responsibility for food safety

The interviewees in this supply chain adhered to the opinion that responsibility for safeguarding the safety of food products is their common objective; despite that, there were practically no measures taken to harmonize activities. The reasons for this varied. For retailer E, there is little time to cooperate with suppliers. Retailer E is primarily focused on purchasing products for their affiliated members and, as a result, the capacity of their quality

assurance department is limited. Retailer E, therefore, depends on institutional forms of trust, like certification for his own-label products.

> 'There are only two people who are responsible for product quality and safety, and we have 900 own labels. This implies that you are not able to cooperate intensively on an individual basis. You can't give that level of attention; that is simply not possible. Therefore, we have chosen to work with a good inspection system. I rely heavily on the BRC system. It is a standard that comprises everything with respect to food safety' *(retailer E).*

Contact between producer C and retailer E is regular, but does not often concern food safety matters; owing to the low level of complaints, neither actor regards more contact necessary. Both retailer and producer judged their relationship to be satisfactory.

For producer C, the reason for much contact is a lack of trust in supplier K. The relationship between them is intense with frequent contact but, from both sides, is felt to be unsatisfactory. It is not a common interest that drives this relationship, but concern and distrust. Producer C worries about the quality of the products supplied by supplier K for one of his new product groups that requires 'high care'.[13] For that reason, his department has frequent contact with supplier K.

> 'We are very pro-active, because we do not trust them; we go there [to supplier K] very frequently, and examine the raw materials very critically even though they are controlled already by the food law authorities. But, yeah, he [supplier K] remains a critical factor for us' *(producer C).*

Producer C thinks that his department has already expended too much energy in helping supplier K to solve food-quality problems, and he is no longer willing to do many extras for him. In producer C's opinion, supplier K does not have control over the quality of some of his products, and he thinks supplier K is not willing to admit that. This tension in the relationship is obviously also experienced by supplier K. He feels that the relationship has changed. He attributes this to organizational change as a consequence of the takeover of producer C:

> 'Personally, I think the cooperation has changed and we now face more a situation of, 'You are the supplier and we are the customer, end of story'... in the past we had more deliberation. Yes, the lines were shorter. The lines are still short, but before it was much easier. It has become now more like, 'We

[13] Due to the chance of possible bacterial contamination, this new product belongs to the category of 'high-risk' products.

> are here and you are there'; a bit like the German method [supplier K is located almost on the German border and has several German customers]: 'I am the producer and you are just *Lieferer'' (supplier K).*
>
> *Interviewer:* How do you feel about that?
>
> 'It's difficult to accept that' *(supplier K).*
>
> *Interviewer:* Why?
>
> 'Because that is not the way we grew. Neither them, nor us. We always had fast contact, like 'I have this or that'... things could always be arranged quickly and all that has changed' *(supplier K).*

Not surprisingly, supplier K has many fears for the future. He relied on his long-lasting relationship with producer C as a source of personal trust, and hoped this would compensate for his shortcomings. With respect to quality aspects, he trusted primarily the experience of himself and his personnel in evaluating the quality of the incoming vegetables.

Responding to food safety incidents

Both retailer E and producer C have experienced the effects of several food safety incidents within their companies. The effects of crises like the Dioxin affair and the MPA scandal forced retailers to withdraw products or to request manufacturers to inform them about the use of suspect ingredients; also producers were confronted with suspect ingredients and were forced to search for alternatives. Producer C recognized that food safety incidents have not only negative effects. He posed that a crisis sometimes functions as an agent of change in organizational processes in an industry.

> 'I think these crises [the Dioxin and MPA crises] opened our eyes and forced us as an industry to make sure consumers don't forget we do our homework in the right way' *(producer C).*

Both producer and retailer deal with small and individual food safety incidents, like a foreign object in a product, in the conventional way, by reimbursing the purchase price or making an exchange, and apologizing. A detailed crisis plan, imposed by the parent company, exists in the producer's organization; the retailer has a recall plan. Three issues in crisis management require thought: dealing with responsibility, recalling a product, and communication about food safety incidents. Retailer E is convinced supply chain members should be open, honest,

and admit responsibility. He referred to the incident with the Coca-Cola cans in Belgium,[14] where in his opinion the wrong strategy was followed:

> 'When you consider the incident in Belgium with the Coca-Cola cans, and all that went wrong there. Coca-Cola shouted in advance: 'It is not our fault; we are not to be blamed'. We should simply stay honest; we should give the facts and take responsibility' *(retailer E).*

He had to admit, however, that his organization sometimes took a different decision in a more or less equivalent situation. He referred to an incident related to the continuing fermentation of wine in bottles that led to a chance of exploding bottles. His organization decided to limit the amount of information given, as more information would, in their opinion, give rise to questions.

> 'We knew there was an incredible number of bottles in the market, and the chances of one cracking was very low, but you don't announce in the newspaper that only 0.001 pro mille will explode. That would lead to questions. You say, 'We have found that something did not go well and there is a chance that a bottle may burst open and, therefore, we kindly request you to return the bottle to the store' *(retailer E).*

Showing compassion in the case of a food safety incident is judged as being important for consumers. However, the interviewees believed that companies hesitate to do so, mainly for legal reasons. Producer C said he held a distant attitude in relation to admitting responsibility. He made a distinction between (legal) liability and (moral) responsibility, and stated that corporate policies prohibit the admission of responsibility unless legally proven. He realized this was not always possible as reputation may be negatively affected. He admitted it sometimes feels like a 'prisoners' dilemma'. In his opinion, a complicating factor is the fact that costs of legal claims often are quite accurate, whereas the cost of damage to one's reputation is often difficult to calculate.

> 'Yes, responsibility really is critical. Never say, "We are responsible", because of the insurance and so on. Rather say, "We will investigate it until everything is clear". You need to be extremely careful about admitting guilt. You can easily get a claim of millions if something happens to somebody;...it is a strange choice you know. It differs for each situation. It is a matter of what is most threatening to your company: you have to decide what to do. If the legal aspects force you to, then you have to do so even if it implies large financial damage. If not, than the moral aspects count, when the consumer feels

[14] See the introduction to this chapter.

> cheated, because if you cheat him, then you have a different type of damage. And if you want to stay in business, you can't do that too often' *(producer C).*

Retailer E said that his organization always accepted responsibility when it concerned one of his private labels or fresh products. In the case of manufacturers' brands, responsibility is transferred to the manufacturer. Recall of products is a reality of life for the supply chain members; in particular for retailer E, it is inherent in his position in the supply chain that he is confronted regularly with recalls initiated by producers. Most recalls concern small and harmless quality deviations and these 'silent' recalls are executed without any publicity. Retailer E told us there was one recall in every three to four weeks. Complaints sometimes precede possibly more harmful incidents, like contaminated nuts in muesli, a complaint retailer E was dealing with at that time. The decision to withdraw a product from the market is mostly agreed upon between supplier and retailer; however, a supplier sometimes has to be forced to recall a product. Different views on the seriousness of a product defect or the size of the recall necessary are often the reason for disagreement. The decision when to recall a product is not difficult to make for producer C, who immediately withdraws the product if it may harm a consumer. Sometimes, however, the consequences are not perceived as serious and the decision is made, despite formal violation of the law, not to withdraw a product. The opinion of the retailer has a major influence in the decision-making. Producer C recalled an incident in the company he had worked for previously:

> 'When there is potential danger to consumers' health, you should never hesitate to recall a product. But suppose a wrong 'best-before-date' is printed on the pack. That happened once. But that date was illogical. A reasonable human being would know it was a mistake. So we decided not to recall the product. The retailer agreed to this. You know you violate the law, but nothing was wrong with the product' *(producer C).*
>
> *Interviewer:* But what if the retailer had disagreed?
>
> 'Then it would have been different. Because the customer is King in a relationship and you don't like conflict in this relationship. Anyhow, you are in an underdog's position' *(producer C).*
>
> *Interviewer:* Does that imply that commercial interests always win?
>
> 'Yes, they often win' *(producer C).*

The interview with retailer E revealed that he knowingly used his positional power in the supply chain to force producers to recall products, as he found that suppliers were not always as cooperative as he would like:

> 'When I see a problem and think that the product needs to be recalled, then I approach the supplier: 'There is a problem and I think that it is better to recall the product'. Sometimes suppliers say, 'Is that really necessary? How big is the problem actually?'... from my point of view there is absolutely no room for discussion; when I decide to recall a product it is a serious matter, I then have a lot of good arguments to do so and most of the suppliers are open to these arguments and do not want to risk the relationship. In general, suppliers are willing to cooperate but sometimes one resists and says, 'There is no problem, it is not my fault' In that case it is very easy for me to say, 'Okay, but then it stops here and we are no longer in business with you. I think such a supplier will reconsider: 'All right, I don't agree with their arguments to recall these products, but based on our long relationship I will cooperate' *(retailer E).*

Retailer, supplier, and producer realized that communication with the stakeholders involved in an incident is of eminent importance in the event of a food safety incident. In particular producer C realized the powerful position of the media in case of a crisis:

> 'We know the media can *make or break* you on such occasions. The media have the power to exaggerate a situation. It is essential you treat the media in the right way, and that all facts are treated thoroughly' *(producer C).*

Summary

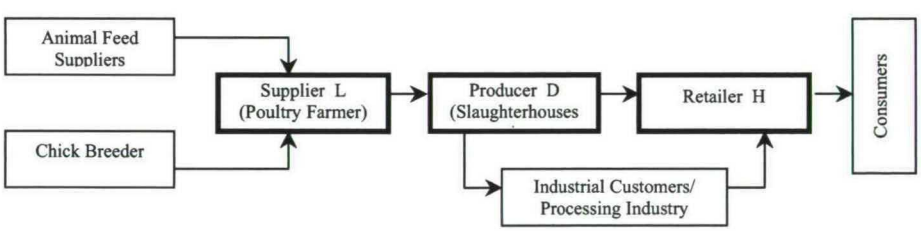
There is no doubt about the high level of safety of food products in the Netherlands. Despite their vulnerability to microbiological contamination, ready-to-eat meals were also judged to be safe. Though food safety incidents caused at home are responsible for the majority of food-borne illnesses, industrial incidents get most of the attention, according to one of the interviewees. Food safety incidents presented by the media are, as was noticed, sometimes a source of entertainment for the public. Food safety incidents also function as agents of change in the food industry, making companies aware of the necessity to inform the public about the measures they take to protect them. Food safety policies are formulated within each of the three companies, with various levels of detail and different degrees of formalization. At one end of the scale were the stringent rules of the parent company of the producer, and at the other end, the soft and tacit knowledge held by the supplier and build by experience. It was felt that some food safety rules have become somewhat exaggerated and unnecessarily

complex, as the producer remarked, referring to the rules imposed by his parent company. Showing empathy with consumers in response to a food safety incident was not felt to be an issue, unless it could be interpreted as an admission of formal responsibility. The costs of legal claims seem to be balanced against the costs of damage to reputation in decision-making; a complicating factor is the often-vague estimate of damage to reputation. The principle of open communication and recalling suspect products is not an issue for the companies of the interviewees. They can understand, however, that other companies may sometimes hesitate to do so because of the costs involved.

The interviews also showed that supply chain members dealt with responsibility for food safety in opposite ways. Constrained by the headcount in his organization, the retailer relied heavily on institutionalized forms of trust like the BRC code to secure food safety. On the one hand, time to cooperate more closely with his supplier was hardly available; on the other hand, the level of complaints and incidents was relatively low, which made more frequent contact also not necessary. Concern and distrust on the part of the producer about the ability of the supplier to maintain control over quality and safety made frequent contact between them necessary. However, the lack of trust urged the producer to rely only on his own quality assurance system.

3.5 Case 4: Chicken products

FIGURE 3.4
THE CHICKEN PRODUCTS SUPPLY CHAIN*



Product category

Chicken and chicken products are consumed on a large scale in the Netherlands. Incidents concerning food safety, such as both the Dioxin crisis and the BSE crisis, had a negative as

* Figure made by Reijnen (2004).

well as a positive influence on consumption. Considered from the point of view of food safety, chicken products constitute a risky product group owing to Salmonella and Campylobacter contamination. As a result of these risks, the chain members developed various initiatives to reduce the risks.

Supplier L

The supplier is a poultry farm that was founded in 1986. It purchases chickens and breeds them for eight weeks, after which time they go to the slaughterhouse. The company hosts about 100,000 chicks per breeding period. Producer D (the slaughter house) is its main customer, with which supplier L has a long relationship. The interviewee is the owner, and runs the farm with his wife.

Producer D

The producer is a comprehensive slaughterhouse for chickens and part of an internationally operating company. The business is one of the largest of its category in the market. The producer provides retail channels as well as industrial processing companies with chicken and chicken products. Affiliated companies deliver the one-day-old fledglings as well as the forage so that the company has substantial influence in the supply chain. The interviewee has a technical background and at the time of the study had been working for the company in her present function as Quality Assurance manager for six years. She heads a department of six persons.

Retailer H

The retailer is part of a large international group of local supermarket chains with Belgium as home base. The company has a long tradition in retailing and an outstanding reputation, and is known for its quality. The organization takes a pro-active approach to food safety and quality, and it has developed an organization-specific code in cooperation with its closest and most important suppliers. The interviewee is quality coordinator at the retailer. She has a master's degree in agricultural engineering. At the time of the study, she had been working for the retailer for two years. Her quality department counts ten people; the department has its own analytical laboratory.

Results

Views on food safety

Food is safe to eat. The interviewees had no doubt about that. The arguments given were that companies can no longer afford to get involved in a food safety incident or scandal, and, therefore, they have to go to great lengths to improve safety and certification systems. Supplier L expressed the view that most people don't worry much about food safety.

> 'I think in general food is safe. There is so much supervision today and quality checks; I think it is not so bad after all... people don't worry much about food safety. They trust it. But of course when there is bad news, then in the consumer's eyes everything is bad' *(supplier L).*

Despite their assumptions that consumers are positive about the safety of foodstuffs, the series of food incidents and scandals have left their mark, as producer D posed. She believes that as a result of the increased wealth in industrialized countries people's concerns about food have shifted from concerns about the availability of food to concerns about the safety of food.

> 'In recent years a large number of food safety incidents have been in the news. As a consequence people feel we are going from one scandal to the other. People get the impression there is always something wrong with foodstuffs. The media attention given to these scandals has strengthened the impression that food is unsafe. Of course, things sometimes go wrong, but that happened in the past too. But then it was accepted and easily settled, or it did not make the news. To me, it is matter of acceptance. Today the economy is flourishing, everybody is doing well, and nobody has to worry about having sufficient food to eat. So they start to worry about other things. People here in the Netherlands don't suffer from hunger, they eat because they like it, because it gives them pleasure, and they don't accept it that sometimes things can go wrong' *(producer D).*

Retailer H believes that food safety control has become more complex because of the growing popularity of convenience products in particular; these are mainly composed products with a short shelf life. In spite of this development, she thinks food is very safe to eat:

> 'In my opinion food has never been so safe. That does not mean we never have incidents. But I think these incidents are the results of the stricter norms we have and the larger number of monitoring programs...but risks can never be fully excluded. Food products are risk products and, really, both the media and the producers finally need to understand that. A food safety incident is not the end of the

> world, because it shows the monitoring programs work, but incidents should be small and the geographic extension should be limited' *(retailer H).*

The media have a strong impact in strengthening and weakening the effects of food safety incidents. Retailer H expressed the view that the media do not always fulfill their job appropriately, referring to the large number of small incidents that are reported in the quiet summer period.

> 'It is really 'silly season[15]'. Really, I'm not exaggerating when I say that every morning I hear something about food issues in the morning news. It is all about small affairs. But it is not fair to the industry. Because these things [small incidents] happen daily. And now, because the journalists are bored, they announce it. But the consumer gets the impression that the safety of food is not really good' *(retailer H).*

Impressions consumers hold about food safety and the behavior of channel members are also influenced by what is reported about criminal activities. In particular negative news has a strong impact, in producer D's opinion, referring to the scandal about glucose syrup that was illegally mixed with hormones:

> 'I read in the newspapers about company X[16] which deliberately ignored the complete legislation for years. The ditch was sometimes colored red or black from all the stuff they dumped. Such things have an influence on the consumer' *(producer D).*

Food safety and chicken meat

The interviewees held different opinions on the risks of consuming chicken meat. The strongest difference existed between retailer H and supplier D, the chicken breeder. Retailer H held the opinion that chicken products belong to one of the most risky product groups. The opposite view was held chicken breeder D, who worked all his life with chickens; he considered the food safety risk to be relative, and is indifferent about the risks:

> 'People have much confidence in chicken meat till criticisms arise from a negative angle. There are many people who do not care about that, but there also are people who care. But then I simply say, 'Don't eat anything, then you will surely die' *(supplier L).*

[15] The interviews were held in the summer period.
[16] The name of the company was mentioned

Both retailer H and producer D expressed the belief that food safety risks related to the consumption of chicken have various causes, like the technical difficulties of reducing the contamination levels with the present - societally - accepted, technologies; the low awareness of consumers of the need for good household practices to reduce the risk of cross-contamination; the unwillingness of consumers to pay for food safety; and, finally, the demand for low prices that results in substantial imports of chicken products. They also felt that not all channel members in their supply chain are fully aware that they are interdependent links in a supply chain, and share responsibility to secure safety. Producer D considered it hardly possible to eliminate all possible food safety risks, despite the substantial program her organization had implemented to reduce the number of contaminated chickens.[17] Also, new and unexpected, sources of contamination may occur. She referred, for instance, to the incidents with dioxin in chicken meat, which had never been an issue before. Continuous adaptation of quality assurance systems is, therefore, necessary.

> 'Regardless of how good your quality assurance system is, it is an illusion to think you can make the product 100 percent safe. Take, for instance, the HACCP system that is used to detect critical spots in your process; for years I did not have MPA in my system or Dioxin because this was not a safety issue. Nobody cared about it. But now we do. Maybe in a few years we will find a new bacteria in chicken meat that makes people sick. Or a virus that develops. We have to modify our systems continuously' *(producer D).*

Retailer H expressed the opinion that consumers still don't know that chicken products are always contaminated with bacteria and, therefore, that they have to be careful with these products. Producer D also felt that consumers should be educated about how foodstuffs should be handled.

> 'I think more attention should be paid to how food products should be handled. Information should be provided to children at a young age. I think it should be hammered into them that they need to take precautionary measures. People have their own responsibility in these matters. Information should start at school. People are using more and more ready-to-eat meals, are heating up products in microwaves. People sometimes hardly know where the foodstuffs come from. People in cities do not come into contact with farmers and hardly know how products are produced. Farming is somewhat in the bad books. People are accustomed to buying food products in a supermarket and that's it. But no one knows

[17] On average, 10% of chickens are contaminated with Salmonella and 10-25% with Campylobacter (www.veevleesei.nl; accessed 07-09-2006).

> what precedes this [before the products are on the shelves], what the risks are. Nobody thinks about that' *(producer D).*

Producer D complained that consumers don't understand that the costs associated with making chicken meat as safe as possible are substantial; in her opinion, consumers are not willing to pay for safety but want low prices. As a consequence, retailers are importing cheap frozen meat from abroad.

> 'The whole monitoring program that we execute on Salmonella costs a lot of money. The hygiene measures cost money. When you design slaughter equipment that operates in a hygienic way, that all costs money. So, if the consumer wants a safe product he should realize that he has to pay for it. It is not for free... What has become very common as a consequence of the consumer demand for low prices is the import of frozen chicken meat from Thailand and Brazil; at a certain point they [the importers] discovered that by adding a small quantity of salt the import duties could be got around. It is lucrative for customers to source the products from those markets' *(producer D).*

Food safety policies

A central element in the food safety policies of the supply chain members was the *'Lastenboek'*. This document, counting 14 pages, stated the rules, specifications, and regulations the various supply chain members have to comply with in order to be an approved supplier of retailer L. Retailer L issued the document in consultation with the suppliers. To minimize the level of bacterial contamination, and in this way reduce the food safety risk, is the major objective. Producer D integrates the various supply chain activities by delivering chicken feed to the chicken breeders, providing strict farm control, supporting the chicken breeders, and slaughtering the mature chickens. In addition to the synergetic effects, this integration of activities helps in controlling for food safety. Producer D controls chicken suppliers carfully in order to comply with the requirements of the customers.

> 'They [the chicken breeders] have contractual obligations with respect to the chicken feed they use and the one-day-chickens...they feel this as a form of light pressure...that they are contractually obliged...that is something they do not always do with pleasure' *(producer D).*

Working with these integrated companies provides numerous advantages for retailer L, like control, optimization of processes, and, in particular, the delivery of a more standardized product.

> 'We benefit from this [the integration], it makes our lives much easier to work with suppliers like them [producer D] because they control the main part of the supply chain...it really is the philosophy of our company, to work with supply chain members who are specialists themselves or operate in a way equivalent to ours, not only with respect to food safety, but also in their way of thinking about cost structures, a pro-active stance, and things like that' *(retailer H).*

Supplier L realized that the retailer is a dominant factor in the supply chain and that his own influence is minimal; he also accepted that the rules imposed helped to improve the level of food safety. However, based on his long experience as a chicken breeder, he also regarded some of the retailer's requirements as exaggerated:

> 'I think supermarkets have somewhat more power than a simple small farmer like me; ... here is their '*Lastenboek'* I have to comply with. In my view, there are a lot of elements in it that are superfluous; it is a bit excessive in places' *(supplier L).*

To retailer H, food safety is not a commercial issue. It is primarily a standard that should be met by suppliers and should not be 'rewarded' with better commercial conditions; however, those suppliers who go to great lengths become known, she posed. Food safety for retailer H is the second priority in the company objectives, after the generation of sufficient cash flow.

> *Interviewer:* Why does food safety have such high priority in your organization?
>
> 'Because our customers are more sensitive to it, because some domains are behind, and we want to differentiate ourselves as distributors; we want to be identified with safe products; also the authorities are more alert and more risks have been identified that were not known before, like acrylamide in chips' *(retailer H).*

The high priority that is given to food safety is operationalized through the integration of food safety requirements in purchasing specifications, educational activities for personnel, and in particular in hygiene measures, proper handling of sensitive product groups like meat and poultry, and maintenance of the 'cold chain'.[18] The formulation of an adequate food safety policy was perceived by producer D and retailer H as an area of growing importance because of the increased strictness of the requirements imposed by the (European) government, the sensitivity of the subject, and the aging population. Retailer H stated that the

[18] The system used for keeping and distributing products in good condition is called the 'cold chain'. This consists of a series of storage and transport links, all of which are designed to keep the product at the correct temperature until it reaches the user.

food industry in general should pay more attention to the vulnerability of specific consumer groups to certain food ingredients and should adapt product development programs to this vulnerability.

> 'In your risk determination you always have to take the weakest parties into account. We do not make products for strong young people with a strong constitution. You need to make the products with the weaker groups in mind;...you can not expect a consumer to study for five years to understand the nutritional information and possible warnings on packaging' *(retailer H).*

Responsibility for food safety

Supplier, producer, and retailer shared similar opinions about the responsibility for food safety: it is in the interest of the whole industry to provide consumers with a safe product. This shared opinion was motivated by societal concern about the contamination of chicken meat with Salmonella and Campylobacter. A string of precautionary measures are needed to keep the level of contamination in check. A binding element in this process is the '*Lastenboek'* issued by the retailer; it also puts the retailer in the position of a 'channel conductor'. This shared responsibility, however, can lead to certain tension in the relationship. Producer D, for instance, pointed to the natural tension between the chicken breeders and themselves because of conflicting interests. She illustrated this by pointing to the difficult decision breeders sometimes have to make regarding administration of medicines against Salmonella to the chickens in the last days before delivery, to avoid a high rejection rate by the slaughter house.

> 'They [the chick breeder] sometimes have to choose between giving a medicine or not to avoid a high rejection rate at the slaughterhouse. When they give a medicine to the chickens they run the risk of rejection by us because of the presence of residues, because we don't want residues in our chicken meat. If they don't, they run the risk of rejection because of sick chickens, because we don't want sick chickens in our slaughterhouse either. This means they have to decide whether or not to keep the chickens for a few more days' *(producer D).*

Because of these conflicting interests, she has found that strict control of the chick breeders is needed. In her opinion, food safety does not always have the highest priority for all chick breeders. Contracts are frequently used to force chick breeders to comply with their regulations. At the same time, she believes that retailers sometimes misuse their purchasing power and vary their requirements. She refers to the import of cheap frozen chicken products from countries outside the European Union.

> 'I think that supermarkets have more power than we have. And they show that they do! To me it is not really cooperation. In my view, cooperation means jointly seeing what is possible, what is impossible, and what we can do together. But retailers frequently create coercive demands. Sometimes very strict demands are imposed on us and then we hear that this happens much less to others. So they apply a double standard when it makes sense for them...countries like Hungary and so on, and Brazil: we have the impression that they impose fewer requirements on them. In fact, they drive us on cost' *(producer D 2).*

Responding to food safety incidents

All interviewees had experienced the effects of a major food safety crisis. Retailer H experienced the effects of chickens injected with beef proteins, dioxin in chicken meat, chloranphenicol in meat, and aflotoxine in milk. Supplier, producer, and retailer have also felt the consequences of animal diseases like the Avian Flue, Foot and Mouth disease, and the Classical Swine Fever. Supplier L still felt angry about the Dioxin affair, as he became a victim of the crisis.

> 'We as small farmers can't do much about it [a food safety crisis]. Like the Dioxin affair. When I order feed for the chickens I expect good chicken feed. I don't want Dioxin feed. It is not my task to control that. It is a governmental task. But during such a crisis they [the government] come to us. They blockade the farm. But what do I have to do with that? I only ordered good chicken feed, so I can't help it when they [cattle feed suppliers] deliver rubbish' *(supplier L).*

Both producer D and retailer H said they had well-defined crisis management plans. A small group of key personnel is involved at retailer H when a crisis occurs. Electronic messages are sent to each supermarket with instructions, for instance, to withdraw products from the supermarket shelves, when that is recommended. To calm consumers is one of the primary objectives in the communication plan:

> 'The basis of our plan is always to reassure consumers, because they frequently become worried as the media give attention to it; so tell the truth and calm the consumer are our main principles in communication' *(retailer H).*

Retailer H distinguishes between different types of contamination (physical, chemical, and microbiological contamination) that may cause an incident or crisis. Physical contamination (foreign objects in a product) is generally a one-time event, but complaints about physical contamination often have a greater emotional impact on consumers. Interviewee H was

shocked by the number of products that were physically contaminated when she started work for the retailer:

> 'I really was frightened by the number of products that were physically contaminated; I really had no idea that this occurs so frequently. A small piece of wood is not so serious, but there were really strange objects that don't belong there like safety pins in chips' *(retailer H).*

Producer D also has a detailed crisis plan, mainly consisting of procedures for recalling products and communication to the media. Central staff departments within the parent company are available to support this. Retailer H posed that consumers, when they become sick and think it is caused by a food product, go back only three hours in recalling what they have eaten, but are unaware that it might be caused by a food product eaten three days ago. This makes it more difficult to trace the cause. The employees of retailer H have been given strict instructions not to enter discussion with consumers about who was responsible for what has happened:

> 'We don't go into discussion, that is our company philosophy: the client is always right. Always. Even if it is obvious that they are taking you for a ride, so to speak. Even then the client is right...the last thing a consumer cares about is who did it. Whether the boss's mother-in-law's cousin did it, or whoever, it doesn't matter; in my opinion you always have to take responsibility. It remains a product that came from your production unit or from your store. We should not suggest it is not our fault. And I think we should always take responsibility. And that doesn't have to be confirmed in black and white; you can always keep the question of who is to be blamed open. Or formulate it in a revised form like, 'We can not confirm that...'But you should never say, 'We are not responsible '. Take the hypothetical case of a jar of our own brand of marmalade that has been opened in one of our supermarkets; a vandal has put a dead mouse in it and closed the jar. We can never say, 'Sorry, we couldn't do anything about it. This is beyond our responsibility'. We may never suggest it is not our fault, as we could have sealed the jars, or used a sticker to close the jars' *(retailer H).*

Producer D also believed that discussion about responsibility was not the first priority:

> 'You first ensure that the incident can't extend and become larger. Then of course you have all the legal an financial settlements about who is responsible and how that is arranged' *(producer D).*

With respect to openness, the interviewees shared the same ideas; they held the view that openness is the best route for companies. In retailer H's experience, there is a tendency

within the food industry, like in the car industry, to openly admit if something has gone wrong.

> 'It is the trend in the car industry to report every defect honestly. And that trend is getting more and more popular. I think it's a good tendency because I think you win trust with openness' *(retailer H).*

However, people should not be motivated to complain, by extraordinary compensation payments, in order to prevent the development of an American-like claim culture. For that reason, retailer H is reserved in compensating consumers. In the event of a complaint the amount of the purchase is compensated without further discussion. If physical damage is claimed, the complaint is examined thoroughly.

Summary

The level of safety of food products was judged by the interviewees to be high. It was remarked that the level of safety has never been on such a high level as nowadays. Consumers' feelings that food is unsafe was perceived as being influenced by several factors, like the media attention that is given to industrial incidents, societal lower acceptance of incidents, and the more intense inspection and higher norms that are revealed in more reported incidents. Opinions about the safety of chicken meat were diverse. Working with chickens day and night, the chicken breeder seemed to consider the food safety risk a small matter, whereas the retailer perceived it as a very risky product group. To make chicken meat a safer product to consume was felt to be quite a difficult objective. Consumers' price sensitivity, rejection of the use of new technologies like irradiation by consumers, and cheap imports were some of the reasons mentioned. In that respect it was noted that consumers have to be educated to take sufficient precautionary measures; however, it was also noted that consumers' knowledge about food products, their origins, and the way they should be prepared and stored is diminishing, which makes it a difficult task. The cost component of food safety was also viewed by one of the interviewees as being underexposed; expensive monitoring programs could not be used as an argument to raise prices, based on consumer unwillingness to pay for it. The central element in the food safety policies of all interviewees was the '*Lastenboek'* issued by the retailer. Compiled in consultation with suppliers, it contains all food safety and quality norms that have to be met. The aim of delivering a safe product throughout the supply chain bonds the interviewees and is the basis of their cooperation.

3.6 Discussion

The question that arises now is what the results of these interviews can teach us about views on food safety and food safety incidents, and how these findings can help us in the creation of realistic scenarios of supply chain responses to food safety incidents. The results indicate that supply chain members hold an opinion similar to that of consumers and expert (see Chapter 2) about the safety of food products: food products in the Netherlands are generally '*safe*' to eat. Some of the supply chain members go one step further by arguing that food products have never been so safe as they are today. They regret that consumers' trust in the safety of food products is lower than is technically necessary; differences between 'laymen's' and experts' perceptions on risk (which is the opposite of trust) have been found in a large number of studies (Dagevos, Ophem, and Gaasbeek 2002; Douthitt 1995; Frewer and Miles 2001; Frewer, Shepherd, and Sparks 1994b; Slovic 1987; Slovic, Fischhoff, and Ligtenstein 1982; Sparks and Shepherd 1994a; Todd 1982; Vlek and Stallen 1980). As was stated ironically by Charnley (2000), "Lay people and experts speak different languages". But supply chain members admit that food safety crises, scandals, and animal diseases have been shown to be capable of creating a significant impact on consumer's trust. In that respect it is interesting that some of the interviewees found that food safety incidents worked like an agent of change in their company, making their organization more aware of the importance of and societal concern about food safety.

But what do the results of these interviews tell us about how supply chain members respond to food safety incidents? To answer these questions we compared - following Eisenhardt's (1989) recommendations for cross-case comparisons - the results of the interviews within the different supply chain chains (see Figure 3.5). Despite the heterogeneous character of the research material and the inevitable subjective influence of the researcher, a pattern seemed to unfold. On one hand, we found objective characteristics like company size, technical food safety risk, and market position. On the other hand, we found subjective criteria like assessment of the extensiveness of food safety policies, expertise, and the views on food safety. We pose that views on food safety can be positioned on a continuum anchored at one end by a *technocratic* (or rational) view on food safety and at the other end by an *emotional* view on food safety. The term 'technocratic' refers to a management style that relies strongly on quantitative decision-making tools in a systematic and analytical mode (Covin, Slevin, and Heely 2001). We used 'emotion' as the opposite

label not only because it is the traditional contrast to 'reason', but also because emotions are often defined as responses (feelings, states of arousal) to events (Frijda 2004). The large and sophisticated supplier in case 1 (frozen foods) is an example of a company with a primarily technocratic view on food safety. This company is substantial in size, is a forerunner in its industry, and has a leading market position. The view on food safety and the response to food safety is *technologically* driven; there is no direct involvement with the final consumer; and high standards of food safety are facilitated by professional knowledge encapsulated in special departments within the organization. We call this a *technocratic concept of food safety*. Central elements in this view of food safety are the intrinsic aspects of food safety, expressed in figures on microbiological safety, morbidity rates, and number of accidents. The decision-making process is rational and fact based. The knowledge is primarily explicit, which means (Nonaka 1991) it is recorded in documents or blueprints, or it resides in the minds of employees but can easily be shared. The level of technical expertise in this type of company is high and food safety policies are strictly formal and detailed, both internally and to suppliers. Quality aspects and food safety aspects of product flows are monitored thoroughly. In the case of food safety incidents, protocols are available describing how to respond; specialists are available in the event of crisis communication or product recalls, and issues like accountability are often approached from a legal point of view. Trust has mainly an institutionalized character, owing to the use of certificates. At the other end of the continuum are the companies characterized by the opinion that *food safety* is *primarily an emotional concept*. One category is the groups of small suppliers, mostly individual farmers or breeders. Their individual power in the supply chain is marginal in economic terms; however, their personal involvement with the vegetables they breed or the animals they keep is high. Food and nature is part of their life, and they feel highly involved.[19] These small suppliers feel the effects of food safety crises like the Dioxin affair, animal diseases, or food scandals personally. Large food safety incidents may threaten their existence, as they mostly don't have alternative products to supply. Supply chain members upstream are able to pass blame and responsibility on to them, but the primary sector is unable to send it further. Expertise within the companies is usually tacit, opposite to explicit knowledge: it is built on personal experience, skills, and attitudes, and is difficult to transfer. Food safety polices are derived from legal norms and, owing to their often anonymous position at the beginning of the supply chain, these suppliers are rarely confronted directly with consumers' questions

[19] In parallel with the definition of consumer involvement, we define involvement as the perceived personal importance or interest attached to a person, subject, issue, or method.

when food safety incidents occur. There is no need to accommodate consumers' inquiries or recall procedures. Towards the middle of this continuum are companies whose responses to food safety incidents are driven by a combination of the technocratic and emotional views on food safety. First are the retailers, who often experience the consequences of a food safety incident directly. Their 'front office' position forces them to handle the individual complaints of consumers as well as the aftermath of food safety crises. Retailers have to reimburse consumers, provide information about what caused the incident, and contact their suppliers. The retailers realize, as one said, 'Food is emotion'. Their response to consumers is based on understanding of this paradigm. Their first interest is to maintain store loyalty. Although retailers are generally the first supply chain members to be confronted with the consequences of a food safety incident (like customer complaints, removing products from the shelves), food safety incidents are less threatening for them. Their intermediate position enables them, except when the incident involves products of their own label, to move legal responsibility to the ultimate producer of the product. Moreover, they can compensate a sudden sales decline in a product group with sales of alternative products. Large retailers are also able to impose their food safety standards on suppliers as they have, like the large producers, specialists at their disposal. The second category is made up of the producers who realize their brand(s) represent a significant equity to them; these producers realize brands are exponents of trust to consumers, powerful but vulnerable. They feel that a purely technocratic response to a food safety incident is insufficient.

We identified, based on a review of the complaint handling literature and crisis management literature, elements like *fair treatment*, *speed* in taking measures, *a fair outcome*, *a fair procedure*, *recall*ing a product voluntarily to limit further damage, demonstrating *openness* about the causes of an incident, and showing *compassion* to the victim as potential antecedents of a successful response to regain trust. The results of the interviews showed that admitting *responsibility* is a weak spot in the response to food safety incidents. Some of the interviewees, in particular the producers, feel it is a matter of searching for a balance; a generous gesture of compassion and responsibility could lead to legal claims whereas a priori denial of responsibility or scapegoating could damage their reputation. It was also found to be difficult to decide on the amount of *information* that should be provided in case of a crisis. To find the right balance between 'avoiding creating panic 'and being open and clear was a delicate issue. To *recall* a product and to *compensate* a consumer were not perceived as difficult decisions. Using these findings, different scenarios

of supply chain responses were drafted and their effects on consumers' trust were measured in the experiment reported in Chapter 5.

We also observed that most supply chain members are convinced food safety is a joint responsibility. However, the way this was operationalized differed between the supply chains. In the frozen foods supply chain, supplier and producer aimed to harmonize the production process and relied on institutionalized forms of trust; the retailer also mentioned the importance of his personal impression about the trustworthiness of his suppliers. The *Milieukeur* label acted as the binding element in the supply chain of vegetables. Within the ready-to-eat meals supply chain, limited staff capacity forced the retailer to rely on codes of conduct, like the BRC code. Distrust between the supplier and the producer in this supply chain in relation to the ability of the supplier to master critical food safety aspects urged the producer to rely on his own quality assurance system to control his supplier.[20] Finally, in the chicken supply chain, the *'lastenboek'* issued by the retailer was the fundament from which the food safety measures for each supply chain member was derived.

[20] The relationship between the supplier and the producer was finally broken and the supplier went bankrupt.

FIGURE 3.5

CROSS-CASE COMPARISON[7]

	Case 1	**Case 2**	**Case 3**	**Case 4**
Characteristics:				
Product category:	Frozen Foods	Vegetables	Ready-to-eat meals	Chicken
Company size[1]:				
o Supplier	*****	**	**	*
o Producer	*****	****	*****	****
o Retailer	*****	****	****	*****
Food safety risk[2]:	High	Low	High	Very High
Market position[3]:				
o Supplier	***	*	*	*
o Producer	***	***	***	**
o Retailer	***	**	**	***
Recent food safety crises experienced:	Yes	No	No	Yes
Food safety policy[4]:				
o Supplier	***	***	*	*
o Producer	***	***	***	***
o Retailer	***	**	*/**	***
Food safety expertise[5]:				
o Supplier	***	*	*	*
o Producer	***	**	***	***
o Retailer	***	*	*/**	***
Views on food safety[6]:				
o Supplier	Techno	Techno/emot	Emot	Emot
o Producer	Techno/emot	Techno/emot	Techno/emot	Techno
o Retailer	Emot/techno	Emot	Emot	Emot/techno

1: < 10 employees: *
10 - 50 employees: **
50 - 100 employees: ***
100 - 500 employees: ****
> 500 employees: *****

2: Primarily based on microbiological risk

3: Market leader: ***
Follower: **
Other: *

4: Formal and written policies with explicit norms; extensive internal monitoring of food safety parameters; internal quality standards often above legal and branch norms: ***
Main lines of policies formulated; less extensive monitoring of quality parameters; legal or branch norms are often used as standard: **
Little own policy formulated; outsourcing of monitoring programs; legal norms or branch norms are used as standard: *

5: Highly specialized knowledge within the organization; front-running position: ***
Moderate levels of specialized knowledge within the organization: **
Mainly tacit knowledge; following position: *

6: Technocratic (techno) versus emotional (emot).

7: Adapted from a scheme made by Reijnen (2004).

Chapter 4 The Effects of Food Safety Incidents on Consumers' Trust: *Who is to Blame?*

The Crow lifted up her head and began to caw her best, but the moment she opened her mouth the piece of cheese fell to the ground, only to be snapped up by Master Fox. 'That will do,' said he. 'That is all I wanted. In exchange for your cheese I will give you a piece of advice for the future-Do not trust flatterers'.

The fable of the fox and the crow, in: Fritz Heider, 1958, The Psychology of Interpersonal Relations (page 13), Erlbaum, Hillsdale NJ.

4.1 Introduction

In the case of uncommon or unexpected events, people search for causes: why did it happen, why did it go wrong? Was it the persuasion technique of Master Fox, or the ego of the Crow, or was it the strong drive of the fox to have the cheese? Food safety incidents, like product failures, motivate consumers to search for attribution (Folkes 1984; Weiner 2000): consumers try to find out why the product failed, to determine the possible causes. In that respect, the concept of attribution can be considered useful to examine the consequences of food safety incidents on consumers' attitudes and behavior. Moreover, understanding the process of attribution followed by consumers in the case of a food safety incident is important for supply chain members to respond adequately to an incident. As explained in Chapter 1, consumers make inferences about what caused an incident along the lines of locus, controllability, and stability. In most surveys a dichotomy with respect to locus is used: the locus is either internal or external. Only some scholars (Folkes and Kotsos 1986; O' Malley Jr. 1996; Su and Tippens 1998) examined the difference in attribution outcome by differentiating the locus condition. But, simultaneously the type of incident was changed. Our concern, however, was to examine how responsibility and blame for *similar* incidents are attributed under different conditions. We aimed in particular to investigate whether the same (type) of incident, but originating at different positions in the supply chain (either at the producer or the retailer), would lead to different outcomes. We argue that the reality of blame and responsibility in the case of a food safety incident is often complex. Who is held responsible? Who is blamed?

Are retailers more vulnerable to incidents because they are positioned more downstream in the supply chain and closer to the consumer? These were central questions in the first part of the experiment that we executed, the results of which we discuss in this chapter.

Differentiation of the external locus to two different supply chain members (supermarket or producer), without altering the type of incident, has in our opinion up till now been an unexplored avenue, whereas in the aftermath of food safety incidents debates frequently arise about vulnerability and 'channel conductorship'. For instance, on March 13, 2001, the Chairman of the Dutch Supermarket Association (CBL), in the aftermath of a national product recall due to the Dioxin crisis, *encouraged* supermarkets to do business only with suppliers who are certified, in order to avoid costly product recalls.[1] His argument was that supermarkets bear a substantial part of the non-reimbursable cost of a product recall. Moreover, he stated, purchasing of food products should not become a kind of lottery for consumers, guessing 'what is safe and what is not'. On April 4, 2001, a Dutch newspaper[2] announced that the largest European supermarkets *forced* the agricultural sector to produce and provide products to them according to the standards of Good Agricultural Practice (GAP). On April 26, 2006, Anders Moberg, President and CEO of Ahold, posed at a congress about the Future of Retailing that food manufacturers have to realize that Ahold *owns* the supply chain, and 'Ahold does go right to the start of the value chain to ensure that customers get value for their money' (Nijenrode European Business Forum 2006 p.2). The results of the interviews with the supply chain members revealed that channel ownership is a sensitive issue. Our results may contribute to solve the discussion about channel conductorship.

In Chapters 2 and 3 we reviewed the results of exploratory surveys of the views on food safety and experiences with food safety incidents of consumers, experts, and supply chain members. We argued, based on the results of our exploration, that consumers in general perceive products as safe to eat. They have confidence in the food supply system as it is governed by legal systems, codes of conduct, and the market mechanism itself, and they generally trust the supply chain members. The level of trust, however, was not similar for each product group. In this chapter we report our findings about the effects on consumers' trust under different conditions of a food safety incident. We limited our investigation to consumers as the unit of analysis, as their opinion was our primary interest. We further decided, after conducting the exploration with four product groups, to limit the experiment to two product groups: chicken and ready-to-eat meals. Limiting the number of product groups

[1] Newspaper article based on CBL press release, March 13, 2001.
[2] *NRC, April 4, 2001.*

to two reduced the complexity of the research design, but at the same time secured sufficient variety. We selected chicken and ready-to-eat meals, as consumers perceive both product groups as relatively risky products compared to other product groups. However, both product groups also have a distinctive character and appearance: composed (ready-to-eat-meals) versus non-composed (chicken).

4.2 Research hypotheses

Research into the attribution process has shown that differences in attribution following a product failure influence the expectations of consumers and their subsequent behavior. If a product failure is consumer related (internal cause), consumers do not expect redress from a firm; redress is expected when the cause is related to a supplier (Folkes 1984; Krishnan and Valle 1979). Folkes (1984) found that the (perceived) stability of a cause was the most important factor that determined the type of redress consumers desired. If the cause was perceived as stable, a form of redress (like a refund) was preferred that did not force the consumer to maintain his relationship with the supplier (like an exchange), as a possible repetition of the incident was expected. Stable events, therefore, had a stronger or more definite impact than unstable events (real incidents or accidents).[3] The same applied to a difference in controllability. Controllability and locus both influence consumers' reactions, for instance, anger if a product failure is attributed to an external party and is perceived as being controllable (Folkes 1984). We expected similar effects on an attitudinal component like pre-trust,[4] with stronger effects for externally attributed food safety incidents than for internally related food safety incidents, stronger effects for stable incidents than for unstable food safety incidents, and stronger effects for controllable incidents than for uncontrollable incidents. As a general hypothesis about the expected *strength* of effects food safety incidents have on pre-trust in actors as well as in products, we hypothesized the following:

[3] We should say stable *events* instead of stable *incidents,* as *incidents* suggests a non-permanent character. We used the neutral term events (*'gebeurtenissen'*) in our questionnaires, but use *events* and *incidents* interchangeably here.

[4] We should say pre-recovery trust, as we measured the level of trust after an incident, but before an intervention. Our primary interest, however, was to measure a possible difference between pre- and post-recovery trust.

Hypothesis 1a/b/c:

> *The strength of the effects of the attribution of food safety incidents observed will be similar to those of product and service failure: external-related food safety incidents will have a stronger effect on consumers' trust than internal-related food safety incidents (1a), stable events will have a stronger effect on trust than unstable events (1b), and controllable food safety incidents will have a stronger effect on trust than uncontrollable incidents (1c).*

The question remained about the *direction* of the effect if multiple (external) channel members are involved. Attribution theory does not provide theoretical guidance regarding the attribution of blame or responsibility in such cases. In the introduction to this chapter we referred to discussions about channel conductorship and vulnerability in the event of food safety incidents. The results of the in-depth interviews with the supply chain members and experts, on the one hand, and the consumer focus groups, on the other hand (see Chapters 2 and 3), showed divergent opinions, even within some of the groups. Some of the experts held a somewhat more formal point of view, and stressed the legal responsibility of each supply chain member for only those activities they are able to control. Others, however, emphasized the shared responsibility, and referred to the 'from farm to fork' adagio of the European Authorities, and were inclined to believe that food safety is primarily a matter of emotion for consumers. The results of the focus groups with consumers revealed that the consumers held a more emotionally driven holistic view on food safety. Who is formally responsible seemed not to be a real issue to them. However, the desire to know where the incident originated was rated relatively high among consumers. The question is, therefore, who 'owns' the problem' in the view of the consumer? Those who produce the food products, or those who distribute the products, or the actor who caused the incident? As we lacked clear academic guidance for a *direction* of the effect, we formulated the following as an explorative hypothesis based on the 'farm to fork principle', which suggests a shared responsibility of the supply chain members[5].

Hypothesis 2

> *Responsibility for an external food safety incident is attributed to both supermarket and producer regardless who caused the incident (2).*

[5] We do not expect responsibility is attributed to a product, as responsibility refers to actor-based behavior and a product is not an actor.

Responsibility for an external food safety incident is attributed also to the producer even if the supermarket caused the incident (2a).

Responsibility for an external food safety incident is attributed also to the supermarket even if the producer caused the incident (2b).

Hypothesis 2 was based on the presumed *responsibility* for an incident. The question, however, is whether the same holds for the effect on *trust*. Does the effect on trust extend to both supply chain members regardless of the technical cause? And is trust in the product also affected in such a case? Hypothesis 3 refers, therefore, to the assumed outcome of the attribution process: the ultimate effect on trust. We limited own hypotheses to *stable* incidents as we expected (see Hypothesis 1) that this type of incident would reflect the largest effect on trust. We therefore tested the effects on trust of stable events relative to unstable incidents. In line with the 'farm to fork principle', we formulated the set of hypotheses listed below, based on the expectation that a stable food safety incident would influence pre-trust in both actors, regardless of who caused the incident. Moreover, we expected that this type of incident would also harm the level of trust in the product.

Hypothesis 3

In the event of a stable external food safety incident, pre-trust in supermarket, producer, and product is affected, regardless of who caused the incident (3).

In the event of a stable external food safety incident caused by the producer, pre-trust in the supermarket is also affected (3a).

In the event of a stable external food safety incident caused by the producer, pre-trust in the product is also affected (3b).

In the event of a stable external food safety incident caused by the supermarket, pre-trust in the producer is also affected (3c).

In the event of a stable external food safety incident caused by the supermarket, pre-trust in the product is also affected (3d).

Folkes (1984) also found in her study a strong effect of controllability on consumers' behavior following product failures. For instance, the controllability dimension influenced

whether blame and anger were projected on an actor. When consumers thought a product failure was due to controllable actions by a supplier, consumers felt angry. Bougie (2005) recently confirmed these findings, but in a broader context of emotions arising from negative service experiences. When we assume consumers share the opinion that chain members should be blamed mutually in case of food safety incidents, according to the 'farm to fork' principle, we could expect trust in both actors is affected as well as trust in the product. We therefore hypothesized, similar to the effects of stability:

Hypothesis 4

> *In the event of an external food safety incident controllable by supermarket or producer, pre-trust in supermarket, producer, and product is affected, regardless of who caused the incident (4).*
>
> *In the event of an external food safety incident controllable by the producer, pre-trust in the supermarket is also affected (4a).*
>
> *In the event of an external food safety incident controllable by the producer, pre-trust in the product is also affected (4b).*
>
> *In the event of an external food safety incident controllable by the supermarket, pre-trust in the producer is also affected (4c).*
>
> *In the event of an external food safety incident controllable by the supermarket, pre-trust in the product is also affected (4d).*

Attribution theory does not provide us with theoretical guidelines concerning whether differences in types of products *within* a category (for instance, food products) influence the outcome of an attribution process. In behavioral studies on complaining (Day, 1978; Day and Ash 1979), most often only a distinction is made between goods and services or between convenience goods and durable products. Folkes (1984) included only different product *categories* and services in her study, like a breakfast drink (nondurable), a bookshelf (durable), shoe repair, and car repair, in order to test the generality of the theory, but did not make a further differentiation. We included two product *groups*, chicken and ready-to-eat meals, within the *category* of food products. These product groups share several similarities: both have a relatively short shelf life, need to be distributed, stored, and prepared under proper conditions (e.g., temperature), and are more sensitive than average to food safety

incidents. Both product groups are also perceived by consumers as less safe than, for instance, bread, cheese, fish, vegetables, and food products sold in glass jars (de Jonge et al 2005). The views we examined in our focus groups with consumers, experts, and supply chain members, on four different product groups (vegetables, chicken, frozen foods, and ready-to-eat meals) provided us with similar indications.

These two product groups are, nevertheless, technically different: chicken is a non-composed product whereas ready-to-eat meals often contain a large number of different ingredients, delivered by various suppliers. Consumers might also perceive a difference in risk between the two product groups, induced by the larger number of incidents where the product group of chicken is involved. As clear theoretical guidance is missing, however, we formulated the following as an exploratory hypothesis:

Hypothesis 5

> *The effects of food safety incidents on pre-trust in the supermarket, producer, and product will be similar for the chicken product group and the ready-to-eat meals product group.*

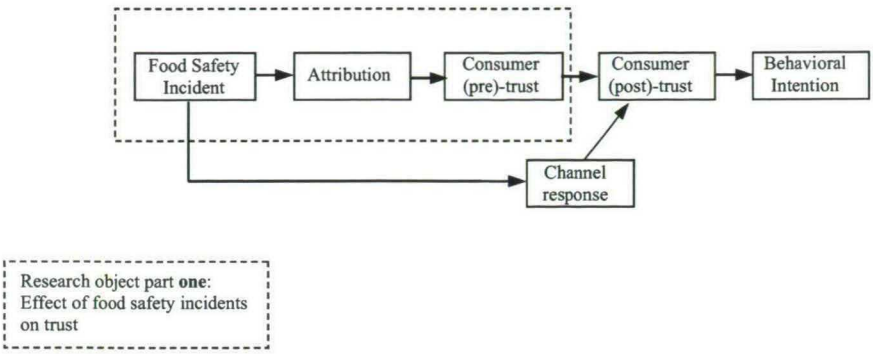
4.3 Method

Research model

As explained in the introduction (see Chapter 1), we examined in the first step the effects of the attribution process following a food safety incident on the trust *(pre-trust)* of consumers in the supply chain members and the product. In the second step we introduced a certain response of the supply chain members and measured once again the effects on the trust consumers express in the supply chain members and the product. We labeled this *post-trust.* It was expected that the difference between pre-trust and post-trust would teach us what, for a variety of food safety incidents, is an optimal response to a food safety incident. Subsequently, we measured the intentions respondents expected consumers would have with regard to word-of-mouth activities and repurchase intentions. In this chapter we report the results of the first part of the experiment. The results of part two are reported in Chapter 5.

FIGURE 4.1

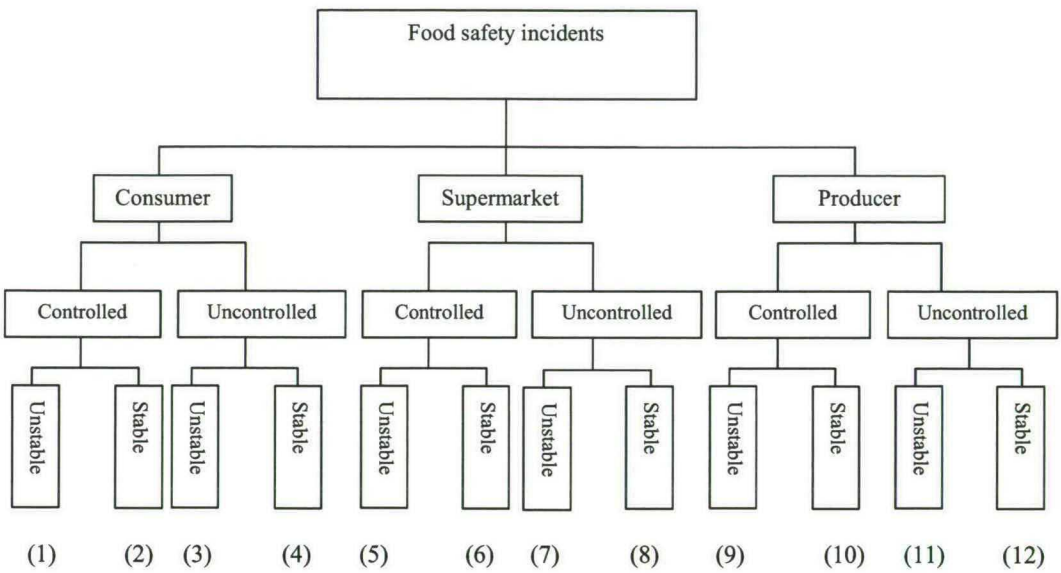
RESEARCH MODEL



Following the experimental design used by Folkes (Folkes 1984), we developed 12 (2x2x3) vignettes describing hypothetical food safety incidents for two product groups (chicken and ready-to-eat meals). Each incident (see Figure 4.2) had a different combination of attributional dimensions (locus, controllability, and stability). Incidents were either controllable or uncontrollable, and stable or unstable. We extended the locus dimension, which in attribution research is traditionally limited to two dimensions (internal versus external), to three: consumer (internal), supermarket (external), and producer (external), as explained above.

FIGURE 4.2

STRUCTURE OF THE
MANIPULATED FOOD SAFETY INCIDENTS



Development of stimulus material[6]

As proposed by Weiner (2000), vignettes were used for the test. Vignettes - short stories of equal length and similar style - are widely used in attribution research (see, for instance, Folkes 1984). They also reflect how information about an incident reaches the public: often through news stories or conversation (Jorgensen 1994). Press articles and reports[7] about causes of food safety incidents were the foundation on which we built the vignettes. Incidents 1-2 were caused by the consumers themselves through not properly preparing the meal (chicken) or keeping leftovers (ready-to-eat meal) by accident (incident 1); and unhygienic behavior by using dirty dishcloths (incident 2). Incidents 3-4 also had their locus at consumers, but were outside their control: refrigerator out of order (incident 3); unknown food intolerance (incident 4). Incidents 5-8 were caused by the supermarket: a power disruption of the cooling cabinet combined with insufficient control by personnel (incident 5); permanent non-compliance with hygiene regulations (incident 6); an incident during

[6] A complete description of each vignette can be found in Appendix 7.
[7] The rationale for these incidents can be found in Appendix 5.

unloading (incident 7); and fraud by a maintenance firm (incident 8). Incidents 9-12 were technically almost equal to incidents 5-8, but this time they originated at the producer.

TABLE 4.1

CAUSES OF THE FOOD SAFETY INCIDENTS EXAMINED

	Incident*	Cause
Locus: consumer		
• Unstable/controllable	1	Cooking time too short/not properly stored
• Stable/controllable	2	Use of dirty dishcloth
• Unstable/uncontrollable	3	Refrigerator out of order
• Stable/uncontrollable	4	Food intolerance
Locus: supermarket		
• Unstable/controllable	5	Malfunctioning equipment and insufficient control
• Stable/controllable	6	Permanent non-compliance with GMP: supermarket
• Unstable/uncontrollable	7	Technical incident
• Stable/uncontrollable	8	Fraud QA reports supplier
Locus: producer		
• Unstable/controllable	9	Malfunctioning equipment and insufficient control
• Stable/controllable	10	Permanent non-compliance with GMP: producer
• Unstable/uncontrollable	11	Technical incident
• Stable/uncontrollable	12	Fraud QA reports maintenance firms

* Equal for chicken and ready-to-eat meals

The vignettes of incidents read like the following two examples:

Incident 5

(Characteristics: Locus at supermarket, controllable, unstable)

A consumer buys a chicken in a supermarket and prepares it at home. After having dinner the consumer becomes ill for a short period due to a food infection. Afterwards it becomes clear that as a result of a sudden power disruption the temperature in the cooling cabinet of the supermarket had risen too high. As a result the chickens were tainted.

Incident 10

(Characteristic: Locus at producer, controllable, stable)

A consumer buys a chicken in a supermarket and prepares it at home. After having dinner the consumer becomes ill for a short period due to a food infection. Afterwards it becomes clear that the producer has not complied with the hygiene code for years. As a result, a bacterial infection developed.

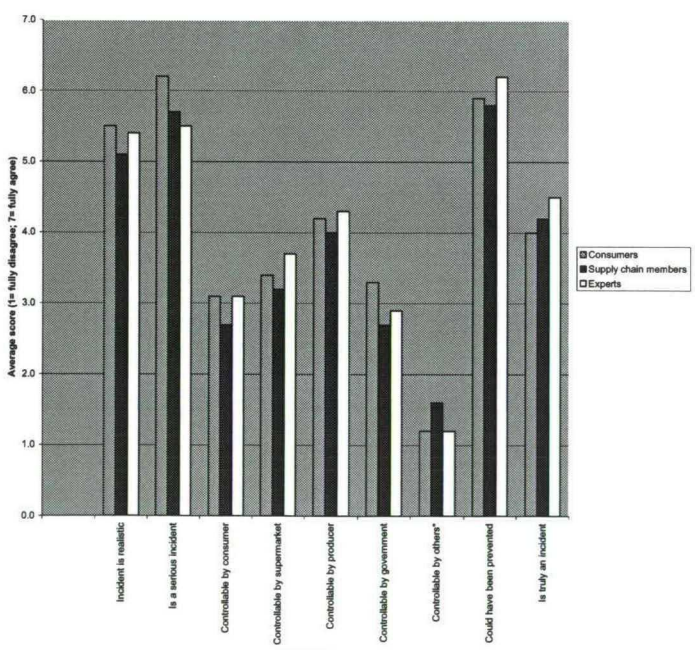
Pilot testing

As part of the exploratory research we also pilot tested vignettes of hypothetical food safety incidents that we intended to use in the main experiment. Consumers, experts, and supply

chain members judged eight different incidents in four different product groups (vegetables, ready-to-eat meals, chicken, and frozen foods). Each incident had a different combination of attributional dimensions (locus, controllability, and stability). After reading the vignette of an incident, respondents were asked to indicate on a 7-point scale, anchored by fully disagree (1) and fully agree (7), whether the incident was realistic, serious, controllable (by consumer, supermarket, supplier, government, or another), and if it was really an incident. Consumers were also requested to rate how clear the incident was to them. The results showed that the different groups of respondents shared similar opinions (see Figure 4.3). All the incidents were rated as realistic. Interestingly, all the incidents were found to be serious. Presumably, a food safety incident that results in illness of a consumer, even for a short period of time, is always perceived as serious. The results made clear that the description of some incidents had to be improved, as the locus was not attributed as expected. Also, the difference in stability between some of the incidents had to be made more distinctive.

FIGURE 4.3

MEAN SCORES OF THE INCIDENTS
BY GROUPS OF RESPONDENTS



We continued our preliminary work with further pre-testing. A total of 330 undergraduate students participated in this. Manipulations of (adapted) incidents were controlled in different rounds with the students. Half of the sample started with questions regarding trust and half the sample with questions regarding attribution, as we expected that the sequence of questioning could have an influence on the ratings by the respondents of trust. Those respondents who started by answering the questions on trust expressed a somewhat lower level of trust in the supply chain members than did the respondents who started by answering the questions about the attribution of the incident. This effect might be the result of a learning process influenced by the attribution questions and leading to a more nuanced judgment of trust. We therefore decided to present the question about trust before the questions about attribution in the experiment. Finally, a pilot test was held with seventy-four household members to test the questionnaire. As Oliver (1997) remarked, most of the measures that have been developed to measure attribution were not specifically developed for the domain of consumer behavior. An option that Oliver (1997) suggests is to work with open questions, in which respondents note what in their opinion caused the outcome. Researchers then interpret the protocols and make a profile, identifying locus, controllability, and stability. The results of the open question are subsequently compared with the results of the closed question on locus. In large-scale surveys, however, such a method is hardly feasible. Therefore, it was decided to use an open question on locus in the pilot tests and to compare the results with the answers to the closed question on locus. If a high degree of similarity between the answers was found, only a closed question would be used in the main experiment. This procedure was successful.

Sampling and sample size

The household panel of CentERdata was used. CentERdata is a survey research institute, specialized in Internet-based surveys and located at Tilburg University. The panel consists of some 2000 households, a representative sample of the Dutch population. Members of households who do not own a personal computer or are not familiar with using the Internet are equipped with a special television set to participate in the panel. As such, the panel also includes elderly people, a characteristic that many Internet-based samples lack. In a between-subjects design, the 12 incidents in the 2 product groups (chicken and ready-to-eat meals) were judged. Each respondent judged only one of the 12 incidents in one product group and, in the second part of the experiment, one out of 32 possible responses that we formulated.

This full factorial design, with 2 observations in each cell, made a sample size of 768 respondents necessary per product category, in total 1536 respondents (see Table 4.2).

TABLE 4.2

NUMBER OF OBSERVATIONS PER INCIDENT/RESPONSE PER PRODUCT GROUP

	Incident 1	**Incident 2**	**Incident ....**	**Incident 12**	**Total number of observations**
Response 1	2	2	2	2	24
Response 2	2	2	2	2	24
Response ...	2	2	2	2	24
Response 32	2	2	2	2	24
Total number of observations	64	64	64	64	768

In the first wave 3094 people were approached, which resulted in 2093 completed questionnaires (68% response). However, as 40 of the 768 cells were not filled, a second wave was sent out. A database of 2315 complete questionnaires was finally available. In order to have a balanced design with equal cells, this gross sample of 2315 was randomly reduced to 1536. Differences between the gross sample and the net sample were examined using *t*-tests on the main parameters. No significant differences were found.

Questionnaire

The questionnaire contained 95 closed questions. Fifteen closed questions were posed to establish the level of trust (pre-trust) in the supply chain members and the product involved; this was followed by 12 closed questions to measure the manipulation. The remaining questions related to the second part of the experiment.

Scales and constructs

Judgment of clarity, realism, seriousness, and level of trust were measured using a 7-point Likert scale. Ratings of causal stability, locus, and controllability were made on a 7-point semantic differential scale. Scale items were adapted from the work of Russell (1982), McAuley, Duncan, and Russell (1992) and applied as done by Jorgensen (1994), Folkes, Koletsky, and Graham (1987), Folkes and Kotsos (1986), and Taylor (1994). Three items were used to measure locus, 3 items to measure controllability, and 3 items to measure stability. Respondents were also requested to report whether or not they ate chicken or ready-

to-eat meals. Pre-trust (and post-trust) in the supermarket, producer, and product was measured using 5 items; 4 items were adapted from the work of Lau and Lee (1999) and 1 item was suggested by Geyskens (2003).

Procedure

The procedure we followed in the experiment is visualized in Figure 4.3. The answers to the questions mentioned under 1 and 2 were used to measure the effects of food safety incidents on pre-trust; the answers to the questions mentioned under 3 showed how the consumers evaluated the responses of the supply chain members.

FIGURE 4.4

SEQUENCE OF STEPS IN THE EXPERIMENT

PART ONE OF THE EXPERIMENT

Reading a vignette of one food safety incident

- (1) Answering 15 closed questions to establish the level of trust (pre-trust) in supply chain members and the product involved.
- (2) Answering 12 closed questions to measure attribution (locus, controllability, and stability).

PART TWO OF THE EXPERIMENT

Reading a vignette of the response. Respondents were requested to imagine the response was the reaction of the supply chain members to the food safety incident.

- (3) Answering 24 closed questions to establish the judgment of the respondents of the different dimensions of the response.
- (4) Answering 15 closed questions (equal to the questions stated under 1) to measure the level of trust (post-trust) as a function of the response given.
- (5) The final set of 18 questions was related to behavioral intentions, attitude, and emotions[8]

[8] This was beyond the scope of this dissertation.

4.4 Results

Profile of the sample

A total of 1536 respondents were included in the analysis, 768 in each product category. Respondents were randomly assigned to one of the product groups. The average age of the respondents was 49.2 years; 53.8% were female and 46.2% male. Average family size was 2.6 persons. The average number of children per family was 0.8. Average income per household per month was 3,697 euros. More than 65% of the respondents who participated could be described as head of the household. No difference ($p<.01$) was observed (t-tests) between the two sub-samples (chicken and ready-to-eat meals). Key data are reported in Table 4.3.

TABLE 4.3

DESCRIPTION OF THE SAMPLE

		Total	Chicken	Ready-to-eat meals
	N=	1536	768	768
Average age of respondents (years)		49.2	48.7	49.6
Gender:				
Male		53.8	52.2	55.3
Female		46.2	47.8	44.7
Average household size (persons)		2.6	2.5	2.6
Average number of children in household		0.8	0.7	0.8
Average gross household income per month (€)		3,697	3, 497	3,897
Position of respondent in household:				
Head of household (%)		65.7	66.5	64.8
(married) partner (%)		30.1	29.6	30.6
other (%)		4.2	3.9	4.6

Reliability

Factor analysis, using Varimax orthogonal rotation, was done to determine the reliability of the construct trust (pre-trust and post-trust). Exploratory factor analysis of the 15 pre-trust items resulted in 3 factors (pre-trust supermarket, pre-trust producer, and pre-trust product). Removal of 3 items (the belief that the supermarket [question 2] or the producer [question 7] intended to cheat the consumer, and the belief that the product could be consumed without

fear in the future [question 11]) raised the explained variance in both product groups from 73% to 79%. A similar exercise was done on the post-trust questions, with the same results.

TABLE 4.4

CRONBACH'S COEFFICIENT

Construct	Chicken	Ready-to-eat meals
Pre-trust		
• Pre-trust supermarket	0.87	0.87
• Pre-trust producer	0.91	0.90
• Pre-trust product	0.94	0.94
Post-trust		
• Post-trust supermarket	0.91	0.91
• Post-trust producer	0.92	0.89
• Post-trust product	0.95	0.94

Manipulation check

As in the preliminary test, we controlled for the manipulated locus, controllability, and stability of the food safety incidents.

Locus of the incidents

The responsibility (locus) for the incidents *('How responsible is the consumer[9] for what has happened?'*) was, in general, perceived as expected. Consumer-attributed responsibility for incidents caused by themselves was rated ($M_{\text{locus consumer}}$=5.4) significantly higher (p<.001) than producer-attributed responsibility ($M_{\text{locus producer}}$=3.0) and supermarket-attributed responsibility ($M_{\text{locus supermarket}}$=2.6), as can be seen from Table 4.5. The corresponding figure for supermarket-caused incidents was ($M_{\text{locus supermarket}}$) 6.1 and for producer-based incidents ($M_{\text{locus producer}}$) 5.7; both are significantly different from when the locus was attributed to the other actors. Interestingly, the responsibility attributed to the supermarket ($M_{\text{locus supermarket}}$ =4.4) for producer-induced incidents was generally closer to the responsibility attributed to the producer ($M_{\text{locus producer}}$=5.7) than was the producer-attributed responsibility ($M_{\text{locus producer}}$=3.0) to the responsibility attributed to the supermarket in the case of supermarket-induced incidents ($M_{\text{locus supermarket}}$=6.1).

An exception to the expected locus of responsibility in both product groups was incident 4 (see Table 4.6). In this scenario a consumer becomes temporarily ill, as he is (unknowingly) sensitive to certain food ingredients, owing to his great age. The producer was

[9] The question was asked successively for the consumer, supermarket, and producer.

seen as primarily responsible for this incident, followed by the supermarket and the consumer. It may be argued that this incident does not meet the prerequisites of the manipulation check; however, interestingly, the respondents seemed to hold the opinion that more than one party is responsible in such an ambiguous situation. Our exploratory research indicated that consumers hold more than one party responsible for different sets of reasons in such ambiguous situations. The producer and the supermarket are perceived to be responsible because they should warn consumers about the possible negative effects of food ingredients or foodstuffs; the consumer, on the other hand, should be aware of his personal circumstances.

Within the chicken product group (see Table 4.6), the responsibility attributed to the producer was not significantly different from the responsibility attributed to the supermarket for incident 9 ($M_{\text{locus producer}}$=5.2; $M_{\text{locus supermarket}}$=4.4; p=106) and incident 11 ($M_{\text{locus producer}}$=4.8; $M_{\text{locus supermarket}}$=4.3 p=.153); however, the means for the producer were consistently above the means for the supermarket. The same holds in the ready-to-eat meals product group for incident 9 ($M_{locus\ producer}$=5.5; $M_{locus\ supermarket}$=4.6; p=.066) and incident 11 ($M_{locus\ producer}$ 4.6; $M_{locus\ supermarket}$ 4.4; p=.694). Comparison of the ratings of incidents 9 and 11, on the one hand, and incidents 5 and 7, on the other hand, is interesting. The technical cause of incident 9 is equal to the technical cause of incident 5 (malfunctioning of cooling equipment). The same goes for incidents 11 and 7. Only the position of the incident in the supply chain was different: incidents 5 and 7 relate to the supermarket whereas incidents 9 and 11 relate to the producer. It seems that consumers attributed responsibility for producer-induced incidents to the supermarket as well as to the producer, but not the other way round.

TABLE 4.5

PERCEIVED RESPONSIBILITY FOR FOOD SAFETY INCIDENTS
(BOTH PRODUCT GROUPS)

Rating: 1= fully disagree 7= fully agree	**Incident 1-4**	**Incident 5-8**	**Incident 9-12**
Locus:	**Consumer**	**Supermarket**	**Producer**
N=	512	512	512
Consumer responsible	5.4ac	1.9ac	1.9ac
Supermarket responsible	2.6bc	6.1bc	4.4bc
Producer responsible	3.0ab	3.0ab	5.7ab

a,b,c = means indicated (in column) with the same letter are significantly different from another $P < .001$

TABLE 4.6

PERCEIVED RESPONSIBILITY FOR FOOD SAFETY INCIDENTS
CHICKEN (READY-TO-EAT MEALS)*

Rating:
1= fully disagree
7= fully agree

Locus:	Consumer				Supermarket				Producer			
Controllability:	controllable		uncontrollable		controllable		uncontrollable		controllable		uncontrollable	
Stability:	unstable	stable	unstable	stable	unstable	stable	unstable	stable	unstable	stable	unstable	stable
N=	64	64	64	64	64	64	64	64	64	64	64	64
Incident:	1	2	3	4	5	6	7	8	9	10	11	12
	Ratings:											
Consumer responsible	6.3 (6.4)	6.6 (6.5)	5.6 (5.4)	3.6[a] (2.9)[b]	1.8 (1.8)[b]	2.8 (2.2)	1.6 (1.5)	2.1 (1.7)	2.1 (1.8)	2.6 (1.8)	1.7 (1.4)	2.2 (1.8)
Supermarket responsible	2.4 (2.5)[b]	2.0 (1.8)	2.4 (2.8)[b]	4.0[a] (3.3)[b]	6.4 (6.7)	6.4 (5.9)	6.0 (6.1)	5.6 (5.8)	4.4[a] (4.6)[b]	5.0 (4.2)	4.3[a] (4.4)[b]	4.3 (4.3)
Producer responsible	3.0 (2.6)[b]	2.3 (2.1)	2.0 (2.5)[b]	4.6 (4.8)[b]	2.3 (2.1)[b]	4.6 (4.3)	2.4 (2.9)	2.9 (2.6)	5.2[a] (5.5)[b]	6.5 (6.7)	4.8[a] (4.6)[b]	6.2 (6.3)

[a] = means indicated with the same letter are not significantly different from another (incident 4: p=.342; incident 9: p=.106; incident 11: p=.153)
[b] = means indicated with the same letter are not significantly different from another (incident 1: p=.339; incident 3: p=.189; incident 4: p=.316; incident 5: p=.109; incident 9: p=.066; incident 11: p=.694)
N = per product group
* Figures product group ready-to-eat meals between parentheses

Controllability of the incidents

Judgment of controllability (*'Could the cause*[10] *of the incident have been prevented?'*) was in general equal to that of responsibility, and in most cases it was judged as expected. The difference between the controllable events, on the one hand, and the uncontrollable events, on the other hand, was significant in both product groups (see Table 4.7). Both the pattern and the level of ratings within the two product groups showed a high level of similarity. The difference between the average scores of the controllable incidents and those of the uncontrollable incidents is much larger when the incident is caused by the consumer than when the cause originates at one of the supply chain members. It seems that the respondents were of the opinion that food safety incidents can often be prevented by supply chain members.

[10] The technical cause of the incident was mentioned.

TABLE 4.7

RATING OF CONTROLLABILITY OF FOOD SAFETY INCIDENTS: CHICKEN (READY-TO-EAT MEALS)*

Rating: 1= fully disagree 7= fully agree							
Locus:		**Consumer**		**Supermarket**		**Producer**	
Controllability:		controllable	uncontrollable	controllable	uncontrollable	controllable	uncontrollable
	N=	128	128	128	128	128	128
				Ratings:			
Controllable by Consumer		6.8[c] (6.7)[c]	2.6[c] (2.3)[c]	n.a n.a	n.a n.a	n.a n.a	n.a n.a
Controllable by Supermarket		n.a n.a	n.a n.a	6.0[a] (5.9)[b]	5.6[a] (5.4)[b]	n.a n.a	n.a n.a
Controllable by Producer		n.a n.a	n.a n.a	n.a n.a	n.a n.a	5.6[c] (5.7)[c]	4.8[c] (4.4)[c]

a = means indicated with the same letter (in the row) are significantly different from one another at $p < .10$;
b = means indicated with the same letter (in the row) are significantly different from one another at $p < .05$;
c = means indicated with the same letter (in the row) are significantly different from one another at $p < .01$;
n.a. = not applicable
N= per product group
* Figures product group ready-to-eat meals between parentheses

The attribution of two incidents (incidents 3 and 4) deserves special attention (see Table 4.8). The controllability of incident 3 in both product groups was rated low, as expected. The illness of the consumer is caused in this scenario by (unnoticed) malfunctioning of the refrigerator at the consumer's home. Though the responsibility is directed primarily towards the consumer (see Table 4.6), the (technical) cause of the incident is seen as being uncontrollable by the consumer, the producer, or the supermarket.

In incident 4, the controllability was also rated low, as expected. In this scenario, the illness of the elderly consumer is caused by his sensitivity to certain food ingredients. Within the chicken product group (Table 4.8), the respondents judged the controllability of this incident by the producer ($M_{\text{controllability producer}}$=3.8) to be significantly higher (p<.05) than the controllability by the consumer ($M_{\text{controllability consumer}}$=2.9). The same applies to the ready-to-eat meals product group: the controllability by the producer ($M_{\text{controllability producer}}$=4.3) was rated significantly higher (p<.001) than the level of controllability by the consumer ($M_{\text{controllability consumer}}$=2.3). It seems that the respondents not only held a producer responsible if certain groups of consumers were vulnerable to food ingredients, but they also felt that producers have the possibility to control it.

Oliver (1997) stated that controllability frequently interacts with locus. This phenomenon was also observed in our survey. The correlations between responsibility and controllability were .69 (consumer-related incidents), .77 (producer-related incidents), and .73 (supermarket-related incidents).

TABLE 4.8

RATING OF CONTROLLABILITY OF FOOD SAFETY INCIDENTS: CHICKEN (READY-TO-EAT MEALS)*

Rating:
1= fully disagree
7= fully agree

Locus:	Consumer				Supermarket				Producer			
Controllability:	controllable		uncontrollable		controllable		uncontrollable		controllable		uncontrollable	
Stability:	unstable	stable	unstable	stable	unstable	stable	unstable	stable	unstable	stable	unstable	stable
N=	64	64	64	64	64	64	64	64	64	64	64	64
Incident:	1	2	3	4	5	6	7	8	9	10	11	12
Ratings:												
Controllable by Consumer	6.7 (6.7)	6.8 (6.7)	2.4 (2.3)[e]	2.9[a] (2.3)[d]	1.9[c] (1.8)[e]	2.9 (2.5)	1.4 (1.2)	1.9[c] (1.9)	1.9 (1.8)	2.9 (1.8)	1.4 (1.1)	1.8 (1.7)
Controllable by Supermarket	2.0[b] (2.1)[f]	1.7[b] (1.2)	1.5[b] (1.8)[e]	3.3[a] (2.6)[d]	5.7 (5.9)	6.2 (5.8)	5.6 (5.5)	5.6 (5.3)	3.7 (3.8)	4.5 (3.8)	2.2 (2.5)	3.6 (3.6)
Controllable by Producer	1.8[b] (2.4)[f]	1.8[b] (1.3)	1.3[b] (1.3)	3.8[a] (4.3)	2.0[c] (1.7)[e]	4.2 (4.1)	2.0 (2.2)	2.3[c] (2.8)	4.9 (4.9)	6.4 (6.4)	4.0 (3.5)	5.6 (5.3)

a = non-significant difference between means producer and supermarket (p= .109) and means consumer and supermarket (p=.163).significant difference between means consumer and producer (p=.016).
b = non-significant difference between means producer and supermarket (incident 1 p= .393; incident 2 p= .549; incident 3 p= .155)
c = non-significant difference between means consumer and producer (incident 5 p=.785; incident 8 p=.100)
d = non-significant difference between means consumer and supermarket p = .112 and significant difference between means consumer and producer as well as between producer and supermarket p =<.001
e = non-significant difference between means consumer and supermarket (incident 3 p=.080) and non-significant difference between means consumer and producer (incident 5 p=.873)
f = non-significant difference between producer and supermarket p = .226
N = per product group
* Figures for ready-to-eat meals product group between parentheses

Stability of the incidents

In order to establish whether or not an event was perceived by the respondents as a real incident or was seen a having a more permanent cause (like consumers always ignoring cooking instructions at home, or producers disregarding hygiene codes), the average sum score of three questions was used: (1) if the respondent expected a repetition of the event in the future; (2) if the event was a real incident in their eyes; and (3) whether the incident characterized the actor. The stability of the incidents was rated as expected (Table 4.9).

TABLE 4.9

STABILITY RATING OF FOOD SAFETY INCIDENTS

Rating:
1= fully disagree
7= fully agree

	Total		Chicken		Ready Meal	
Stability:	Unstable (incident)	Stable (no incident)	Unstable (incident)	Stable (no incident)	Unstable (incident)	Stable (no incident)
N=	768	768	768	768	768	768
			Ratings:			
Is not a real incident	3.2[a]	4.6[a]	3.1[b]	4.6[b]	3.2[c]	4.6[c]

[a.b.c] = means indicated with the same letter are significantly different from one another at $p < .001$

In sum: The attribution of locus, controllability, and stability was as expected. One incident was perceived differently than expected. This incident was caused by the physical condition of a consumer that made him sensitive to certain food ingredients. Respondents seemed to believe that primarily the producer is responsible for preventing such an incident. However, a certain level of responsibility was also attributed to the supermarket and the consumer. Interestingly, this opinion on the responsibility of the producer was also articulated in some of the interviews with supply chain members (see Chapter 3). In their opinion, the responsibility of supply chain members for avoiding such incidents is increasing. The issue of perceived responsibility is an important one given the present discussion about the responsibilities of supply chain members with respect to obesity and the number of people who suffer from food allergies.

The results so far also reveal that, in the eyes of the consumer, the supermarket holds responsibility for food safety, even if the technical reason for an incident rests with the producer. This is probably explained by the position of the supermarket as the last station for the consumer.

Clarity, realism, and seriousness of the food safety incidents

As in the exploratory research and the different manipulation tests, we asked the respondents to rate the food incident they had read on clarity, realism, and seriousness.

All incidents were rated significantly ($p<.001$) above the (neutral) scale midpoint for all 3 aspects. The ratings were $M_{clarity} = 5.8$; $M_{realism} = 5.1$; $M_{seriousness} = 5.6$. The *t*-test did not show significant differences between the two product groups. Only for some individual

incidents were small differences found between the two product groups. The realistic character of incident 1 ($M_{\text{realism chicken}}$=5.9) in the chicken product group was rated somewhat higher (p<.10) than that of the same incident in the ready-to-eat meals product group ($M_{\text{realism rtm}}$=5.5), maybe because of the well-known dangers of chicken. This incident is caused by accidental incorrect handling of the product by the consumer. The seriousness of incident 2 was also rated higher (p<.05) for chicken ($M_{\text{seriousness chicken}}$=5.2) than for ready-to-eat meals ($M_{\text{seriousness rtm}}$=4.6). The cause of this incident was the consistently unhygienic behavior of the consumer; this might be seen as more threatening in combination with chicken products owing to awareness of the risks associated with this kind of incident.

The results show that incidents with an external locus were perceived as being more serious than incidents with an internal cause. This is probably because of the more extensive effects an incident caused in the supply chain might have. Events with a more stable character in the chicken product group were rated as significantly more serious than events with an incidental character (see Table 4.10). Differences in controllability did not seem to result in different ratings of seriousness for either product.

TABLE 4.10

RATING OF THE SERIOUSNESS BY
LOCUS, CONTROLLABILITY, AND STABILITY

Ratings:
1= not serious
7= very serious

	Total	Chicken	Ready Meal
N=	1536	768	768
Locus			
• Internal locus	4.9[a]	5.0[a]	4.8[a]
• External locus	5.9[a]	5.9[a]	5.9[a]
Controllability			
• Uncontrollable	5.6	5.5	5.7
• Controllable	5.5	5.6	5.5
Stability			
• Unstable	5.4[a]	5.4[b]	5.5
• Stable	5.7[a]	5.7[b]	5.7

a = means indicated with the same letter are significantly different from one another at $p < .001$

b = means indicated with the same letter are significantly different from one another at $p < .01$

Effects of different conditions of food safety incidents on trust

The first question that was answered by the consumers after they read one of the incidents concerned the perceived level of trust. The respondents then answered questions regarding the attributions of the incident. As stated earlier, a different level of trust was measured in the pre-test when the respondents started with questions about the attribution of the incident followed by questions about trust, compared to when respondents started in the reversed order, suggesting a learning effect. Following the recommendations made by Perdue and Summers (1986), the level of trust, as the most important dependent variable, was measured first. For reasons of clarity, we started this chapter with a report of the findings on the attribution questions and the ratings of the clarity, realism, and seriousness of the incidents.

We started our analysis of the relationship between pre-trust and the manipulated food safety incidents by examining the pre-trust ratings of the individual incidents. Almost all pre-trust ratings of the incidents differed significantly ($p<.05$) from the neutral mid-point (4) on the 7-point scale used, either positively with higher ratings, or negatively with lower ratings. The only exception in the chicken product group was incident 12 ($M_{\text{pre-trust producer}}=3.8$; $p=.267$). Exceptions in the ready-to-eat meals product group were incident 5 ($M_{\text{pre-trust supermarket}}=4.3$; $p=.103$) and incident 12 ($M_{\text{pre-trust producer}}=4.1$; $p=.476$). Incident 12 was probably rated as less serious because it referred to an incident not controllable by the producer (delivery of false quality reports by his supplier), whereas incident 5 refers to a power disruption in the supermarket.

With the aim of test our hypotheses, we conducted a linear regression analysis, using the locus dimensions and product group as regressors (dummy coded) on pre-trust in the supermarket, the producer, and the product (see Table 4.11). Mean centering was applied to get acceptable VIF values; after mean centering all values were between 1.0 and 1.3. The result (see Table 4.11) was a moderate fit for pre-trust in the supermarket ($R^2_{adj}=.29,7\%$) and pre-trust in the producer ($R^2_{adj}=32,8\%$), and a poor fit for pre-trust in the product ($R^2_{adj}=6\%$), indicating that the manipulated difference in dimensions of a food safety incident primarily affect trust in supply chain members. However, the overall model was highly significant for pre-trust in the supermarket ($F_{11,1524}=59.942$, $p<.001$), pre-trust in the producer ($F_{11,1524}=69.020$, $p<.001$) and pre-trust in the product ($F_{11,1524}=9.949$, $p<.001$).

TABLE 4.11

PRE-TRUST RATING IN SUPERMARKET, PRODUCER, AND PRODUCT: MODEL RESULTS (BOTH PRODUCTS)

N=1536	Unstandardized coefficients		
	Pre-trust in :		
	supermarket	**producer**	**product**
Main effects°			
Stability (0,1)[1]	-.492***	-.977***	-.300***
Controllability (0,1)[2]	-.399***	-.307***	-.040
Locus supermarket	-1.491***	-.339***	-.352***
Locus producer	-.625***	-1.371***	-.590***
Interaction effects °			
Stability x controllability	-.277*	-.150	.255
Stability x locus supermarket	-.540***	-.146	.156
Stability x locus producer	-.246	-1.230***	-.051
Controllability x locus supermarket	-1.468***	-.925***	-.801***
Controllability x locus producer	-.650***	-1.227***	-.523**
Stab. x control x locus supermarket	-.1.584***	-2.104***	-.875**
Stab. x control x locus producer	-.832**	-1.461***	-.477
Overall intercept	5.067	5.105	5.069
Adjusted R Squared	.297	.328	.060
F-statistic	59.942	69.020	9.949
D.F	11,1524	11,1524	11,1524
p-value	.000	.000	.000

* p <.05; ** p<.01; ***p<.001.

° = base line is locus consumer
[1] = base line is unstable events (0)
[2] = base line is uncontrollable events (0)
(mean centered)

We defined:
- Stability = .5 for stable and –0.5 for unstable event
- Controllability = .5 for controllable and -0.5 for uncontrollable events
- Supermarket = 0.666 for locus supermarket, -0.333 for consumer or producer
- Producer = 0.666 for locus producer, -0.333 for consumer or supermarket

Our first hypothesis concerned the expected *strength* of effects on trust under different conditions of locus, stability and controllability. The hypothesis stated: external-related food safety incidents will have a stronger effect on consumers' trust than internal-related food safety incidents (1a), stable events will have a stronger effect on trust than unstable events (1b), and controllable food safety incidents will have a stronger effect on trust than uncontrollable incidents(c). As expected, we found support for this hypothesis. Externally caused incidents, which are incidents created by either the supermarket or producer, were indeed found to have a significant (p<.001) negative main effect, relative to consumer-induced incidents. *Stable* events were also found to have a significant negative main effect on

consumers' trust in the supermarket (b=-.492; t_{1524}=- 8.109, p<.001), producer (b=-.977; t_{1524}=-15.086, p<.001) and the product (b=-.300; t_{1524}=-4.470, p<.001). The effect of a difference in stability was significantly larger (p<.001) on pre-trust in the producer relative to pre-trust in the supermarket or product, which might indicate that consumers interpret these effects as more related to defects in production systems or production procedures, affecting more products. Events that are perceived as *controllable* (and, therefore, avoidable), like consumers ignoring cooking instructions, or supermarkets or producers insufficiently controlling equipment, were found to have a significant (p=<.001) negative effect on pre-trust in the supermarket and the producer, but not on the product.[11]

Our second set of hypotheses referred to the attribution of responsibility to supermarket and/or producer in the case of food safety incidents caused by one of them (this means we excluded consumer-induced incidents). We did not found general support for Hypothesis 2, which stated that responsibility for externally caused incidents is attributed to both supermarket and producer regardless of who caused the incident (see Table 4.12). This means that responsibility to avoid food safety incidents is not the same for supply chain members. There a remarkable differences in the direction and level of the attributed responsibility. For instance: we did not find support for hypothesis 2a, which stated that responsibility is attributed to the producer if the supermarket caused the incident. The level of agreement with the statement that the producer was responsible for the incident (M_{chicken} =3.0; $M_{\text{ready meals}}$ =3.0) *even* if the supermarket caused the incident, was significantly (p<.001) lower than the neutral midpoint (4.0) of the scale. This implies consumers attribute less responsibility upwards in the supply chain to the producer if the supermarket caused the incident. However, we found support for Hypothesis 2b, which stated that the supermarket shared responsibility for incidents *even* if the producer caused the incident. The level of *agreement* with this statement (M_{chicken} =4.5; $M_{\text{ready meals}}$ =4.4) was highly significant (p <.001) from the neutral midpoint (4) of the scale. The significant difference (p<.001) between

[11] We also re-ran the regression but excluded consumer-induced incidents (which implied reducing the number of observations from N=1536 to N=1024) to examine the effects on externally caused incidents only. The weight of the coefficients under the conditions of controllable incidents was considerable higher for pre-trust in the supermarket (b=-.889; t_{1016}=-10.782, p<.001) and pre-trust in the producer (b=-.616; t_{1016}=-6.921, p<.001). Also, the effect on pre-trust in the product was now significantly negative (b=-.307; t_{1016}=-3.415, p<.01). This implies controllability has a reversed effect when it concerns controllable incidents caused by the consumer. In cases of controllable events, consumers have relatively more trust in the product when they have control than when events are controllable by either the supermarket or the producer. Consumers will conclude that the product is safe as they caused the incidents themselves. Inspection of the means confirmed this conclusion: pre-trust in the product within the group of events controlled by the consumer were rated 5.6 versus 5.2 for uncontrollable events; events with an external locus (caused either by the supermarket or the producer) were rated in the opposite way, with 4.8 for controllable events and 5.1 for uncontrollable incidents (all differences significant at p=.001).

the level of responsibility attributed to the supermarket ($_{chicken}$ 1.2; $_{ready\ meals}$ 1.4) for incidents caused by the producer and the level of responsibility attributed to the producer for incidents caused by the supermarket ($_{chicken}$ 3.1; $_{ready\ meals}$ 3.1) was also significant (p<.001). The results showed that more responsibility is attributed to the supermarket than to the producer, presumably because of the position of the supermarket in the supply chain. Supermarkets seem to be viewed as the 'gatekeeper' of the supply chain, and as having a responsibility to safeguard consumers. This perception of responsibility might differ from a legal point of view about responsibilities in the supply chain.

TABLE 4.12

ATRIBUTION OF RESPONSIBILITY VERSUS CAUSATION OF EXTERNALLY CAUSED FOOD SAFETY INDICENTS

1= full disagree 7= fully agree	**Incident caused by:**			
N= 1024	Supermarket		Producer	
	Chicken	R.T.E meals	Chicken	Chicken
Responsibility attributed to:				
Supermarket	6.1[a]	6.1[b]	4.5[c]	4.4[d]
Producer	3.0[a]	3.0[b]	5.7[c]	5.8[d]
Difference:	3.1[e]	3.1[f]	1.2[e]	1.4[f]

a,b,d,c,d = means indicated with same letter are different at p <.001 as well as different from the scale mid-point (4.0)

e,f = means indicated with same letter different at p < .001

Hypothesis 3 covered the expected effects on trust in case of stable events caused by one of the supply chain members. Contrary to relatively temporary causes (unstable events) that may fluctuate over time, stable events are fairly permanent or remain stable over time. We did not find support for Hypothesis 3, which stated that a stable external food safety incident affects pre-trust in the supermarket, producer, and the product, regardless of who caused the incident. Neither did we found support for the hypotheses 3a and 3d. The effects were found to be rather specific. The results (Table 4.11) show that when the *producer* induced the incident, the level of trust in the producer was severely damaged (b=-1.230; t_{1524}=-7.759, p<.001) relative to the level of trust following consumer-caused incidents. However, trust in the supermarket and product was *not* affected. A similar limited effect was found if the *supermarket* created the incident; trust in the supermarket was seriously damaged (b=-540; t_{1524}=-3.632, p<.001) but *not* trust in the producer and in the product. This implies that for stable incidents caused by an external actor, the negative effect is limited to the actor who

caused it. We examined whether there were differences in effect between these two incidents by comparing[12] the values of the two coefficients. After all, the incidents were the same, but only the locus was different. We found a significant difference at $p < .01$. This indicates a larger effect on the producer relative to the supermarket. We had earlier found a similar difference as a main effect. This implies that the stability dimension of an incident is more important for the attribution of blame to a producer than for the attribution of blame to a supermarket. We assume consumers expect the lack of sufficient precautionary measures to have greater consequences - as a larger number of incidents are involved - if this is engendered by a producer (who in principal delivers to more than one supermarket) rather than by an individual supermarket.

Hypothesis 4 concerned the effects on trust of controllable events caused by one of the supply chain members. A cause is controllable if choice is involved or the outcome could have been avoided, unlike uncontrollable incidents, which involve non-volitional causes. We found general support for Hypothesis 4, which stated that a controllable external food safety incident affects pre-trust in the supermarket, producer, and product, regardless of who caused the incident. The effects were found to be non-specific. We therefore found support for the hypotheses 4a, b, c and d, which specified the expected effects under different conditions of locus and the expected effects on trust in the product. Controllable incidents affect trust in *both* supply chain members. Consumers hold both supermarket and producer accountable, regardless of who technically caused the incident. Trust in the supermarket is negatively affected in the case of an incident controllable by the producer. In a similar way, trust in the producer is affected if an incident is found to be controllable by the supermarket. Contrary to what we found for stable incidents, in the case of controllable incidents, also trust in the product is affected. The question is why trust in the product is affected in this event? We expect that consumers associate controllability with uncertainty about the future behavior of actors; will the actors take measures to prevent the incident from happening again in the future? This uncertainty also makes it difficult for consumers to decide if they can still have trust in the product in the future. Consumers might cope more easily with a difference in stability, as stable events more or less predict the expectation of a repetition of the incident in the future.

[12] We used a *t*-test to examine the differences.

We also found that incidents that are perceived as *controllable* and *stable* and are induced by either the *producer* or *supermarket* have the strongest negative effect on pre-trust in both actors as well as the product. The incident described permanent non-compliance by either the supermarket or the producer with procedures intended to protect consumers. If this confidence is harmed, consumers react strongly. Consumers infer that such behavior of a supply chain member is a clear *intention* to commit fraud and make personal gain at the expense of the public. Pre-trust in the supermarket decreased ($p<.001$) by 1.584 points if the supermarket caused the incident and by 2.104 points ($p<.001$) if the producer caused the (similar) incident. Despite the difference in external locus, the size of effect on pre-trust in the actors was in this case more or less the same. A Wald test on the size of effect showed only marginally significant differences ($p<.05$) between the coefficients for pre-trust in the supermarket under the condition of locus supermarket (b=-1.584) and locus producer (b=-.832) and the coefficients for pre-trust in the producer under the condition of locus supermarket (b=-2.104) and locus producer (b=-1.461). The question is why we did not find a larger effect for the supermarket here. We expect that the inferred negative intention reflected by the behavior of both the supermarket and producer has such a such a strong effect that it overrules all other effects.

Hypothesis 5 concerned the effect of a possible difference induced by the two product groups. We expected the effects of food safety incidents on pre-trust to be similar for chicken and ready-to-eat-meals. We therefore ran the linear regression for product groups separately (see Tables 4.13 and 4.14). We found partial support for our expectation, revealing some interesting findings.

TABLE 4.13

PRE-TRUST RATING IN SUPERMARKET, PRODUCER, AND PRODUCT: MODEL RESULTS (CHICKEN)

	Unstandardized coefficients		
N=768	**Pre-trust in :**		
	supermarket	**producer**	**product**
Main effects°			
Stability (0,1)[1]	-.539***	-1.031***	-.320**
Controllability (0,1)[2]	-.444***	-.320**	-.179
Locus supermarket	-1.409***	-.383**	-.432***
Locus producer	-.621***	-1.374***	-.440***
Interaction effects °			
Stability x controllability	-.240	.195	.321
Stability x locus supermarket	-.490*	-.051	.152
Stability x locus producer	-.227	-1.217***	.146
Controllability x locus supermarket	-1.537***	-.906***	-.875***
Controllability x locus producer	-.492*	-1.018***	-.455
Stab. x control x locus supermarket	-2.152***	-1.867***	-.719
Stab. x control x locus producer	-1.266**	-1.863***	-.746
Overall intercept	5.031	5.105	4.996
Adjusted R Squared	.287	.316	.053
F-statistic	29.046	33.283	4.907
D.F	11,756	11,756	11,756
p-value	.000	.000	.000

* p <.05; ** p<.01; ***p<.001.

° = base line is locus consumer
[1] = base line is unstable events (0)
[2] = base line is uncontrollable events (0)
(mean centered)

We defined:
- Stability = .5 for stable and –0.5 for unstable event
- Controllability = .5 for controllable and -0.5 for uncontrollable events
- Supermarket = 0.666 for locus supermarket, -0.333 for consumer or producer
- Producer = 0.666 for locus producer, -0.333 for consumer or supermarket

TABLE 4.14

PRE-TRUST RATING IN SUPERMARKET, PRODUCER, AND PRODUCT: MODEL RESULTS (READY-TO-EAT-MEALS)

	Unstandardized coefficients		
N=768	**Pre-trust in :**		
	supermarket	**producer**	**product**
Main effects°			
Stability (0,1)[1]	-.445***	-.922***	-.279**
Controllability (0,1)[2]	-.353***	-.294**	-.100
Locus supermarket	-1.572***	-.296**	-.271*
Locus producer	-.629***	-1.368***	-.739***
Interaction effects °			
Stability x controllability	-.315	-.495**	.189
Stability x locus supermarket	-.590**	-.240	.160
Stability x locus producer	-.266	-1.244***	-.248
Controllability x locus supermarket	-1.578***	-.943***	-.727**
Controllability x locus producer	-.809***	-1.436***	-.592*
Stab. x control x locus supermarket	-1.016*	-2.340***	-1.031*
Stab. x control x locus producer	-.398	-1.059*	-.207
Overall intercept	5.103	5.205	5.142
Adjusted R Squared	.305	.347	.076
F-statistic	31.556	37.972	6.710
D.F	11,756	11,756	11,756
p-value	.000	.000	.000

* p <.05; ** p<.01; *** p<.001.

° = base line is locus consumer
[1] = base line is unstable events (0)
[2] = base line is uncontrollable events (0)
(mean centered)

We defined:
- Stability = .5 for stable and –0.5 for unstable event
- Controllability = .5 for controllable and -0.5 for uncontrollable events
- Supermarket = 0.666 for locus supermarket, -0.333 for consumer or producer
- Producer = 0.666 for locus producer, -0.333 for consumer or supermarket

Comparison of the intercepts for pre-trust in the supermarket, producer, and product did not show major deviations, indicating both product groups have similar pre-trust levels. Also, the significance levels of the main effects did not differ between the two products, except for the effect on pre-trust in the product. The effect on pre-trust in the product if the supermarket caused the incident was highly significant for chicken (b=-432; t_{756}=-3.691, p<.001) but less significant b=-271; t_{756}=-2.367, p<.05) for ready-to-eat meals. This suggests that the supermarket is more heavily penalized if the cause is attributed to it for incidents concerning chicken products. We found much stronger three-way interaction effects between stability, controllability, and locus for chicken products than for ready-to-eat meals on pre-trust in the supermarket and producer, whereas the effect on pre-trust in the product was not significant.

Hence, we conclude that both actors suffer a significant loss of trust if incidents involve chicken products. Why trust in the chicken product is not affected might be explained by the general awareness of consumers that chicken is a risky product group. Both supermarket and producer should, therefore, take note that these findings suggest that consumers are more critical in judging the behavior of actors when a safety incident concerns vulnerable product groups. The difference in results between the two product groups suggest that contrary to the more general effect on both actors in case of incident within the chicken product group, within the product group of ready-to-eat meals the producer is more penalized.

In sum, food safety incidents have different effects on consumers' trust, depending on differences in locus and /or controllability and/or stability. The effects of food safety incidents primarily influence trust in the actor; the effect on the product is limited. In particular locus is a strong moderator of the effect. Not surprisingly, incidents caused by an external actor like a supermarket or a producer have a much stronger negative effect than incidents caused by consumers themselves. Also, stability has a strong effect on trust, in particular when the producer causes the incident. Controllability was found to have a reversed effect: if the consumer has control over the occurrence of an incident, people will conclude that the product itself is safe. The opposite holds for incidents controlled by an external party, like the supermarket or producer. The strongest negative effects are created by events that are perceived as external *and* are judged to be controllable *and* stable. Fraud and a clear intention to mislead the public for personal gain destroy trust. The effects of controllable incidents are also not limited to those who technically caused them: both supply chain members and the product have to pay the price. The results also indicate a more vulnerable position of the supermarket, based on its attributed responsibility as gatekeeper of the supply chain.

Difference between users and non-users

We examined if there was a difference in ratings between consumers (users) and non-consumers (non-users) within a product group. Being a consumer or a non-consumer clearly influenced the level of pre-trust, but only in the product. In both product groups non-consumers showed significantly lower levels of pre-trust ($p<.001$). Non-consumers seem to be more suspicious in case of food safety incidents, as far as the product is concerned.

TABLE 4.15

PRE-TRUST RATING USERS AND NON-USERS

Ratings: 1= low level of trust 7= high level of trust		Chicken		Ready-to-eat meals	
		User	**Non user**	**User**	**Non-user**
	N=	738	30	423	345
Pre-trust in supermarket		5.0	4.8	5.1	5.1
Pre-trust in producer		5.0	4.6	5.2	5.2
Pre-trust in product		5.0a	3.9a	5.4b	4.8b

a = means indicated with the same letter are significantly different from one another at $p < .001$;

4.5 Discussion

This first part of the experiment was designed to investigate the effects on consumers' trust of different conditions under which food safety incidents can occur. These manipulated conditions concerned causation (locus), controllability, and stability of food safety. Several of our findings are in line with what is known from the attribution theory (Folkes 1984; Valle and Wallendorf 1977; Weiner 1992; Weiner 2000) and surveys to product and service failures (Folkes 1984; Folkes, Koletsky, and Graham 1987; Smith and Bolton 1998). Incidents induced by supply chain members result in stronger effects relative to consumer-induced incidents, stable incidents create stronger effects than unstable incidents, and controllable incidents cause stronger effects than uncontrollable incident. But what is new in our findings?

In general, we found (a) differential effects with respect to external locus, (b) a more common than expected opinion of consumers that food safety incidents can be avoided by supply chain members, (c) greater attribution of responsibility to the supermarket, and (d) differential effects between product groups.

Differential effects with respect to external locus

The results show that food safety incidents are *always* perceived as serious, even if the consequence is only a temporary illness. But - not surprisingly- externally caused incidents are perceived as more serious, and have a larger impact on trust. We found, however, that

differences in attributional conditions in general have *more* impact on consumers' trust in the supply chain members than on trust in the product. This seems to be in line with the results of various studies, in particular the *Consumenten Monitor* (de Jonge et al. 2005), but is also in line with the conclusions of our group discussions with consumers, and interviews with experts and supply chain members, that food products are generally safe to eat. However, this finding is, in our opinion, an extension of the attribution theory. We also found that *controllability* of an event, measured by asking consumers if they believed the incident could have been avoided, showed *opposite* effects on trust. If the event was induced by the consumer, controllability had a positive effect relative to its effect if the event was controllable by the supermarket or producer; consumers seem to infer that if the consumer caused the incident the product itself is safe to eat.

We also observed in the case of *stable* events that interaction with an external locus (either the supermarket or producer) affects *only* the supply chain member who caused the incident. In particular, the interaction effect between stability and locus of the producer was strong. We assume that consumers expect that food safety incidents caused by a producer have greater consequences than supermarket induced incidents. However, in the case of incidents *controllable* by either the supermarket or the producer, the effects are negative for supermarket *and* producer *and* for the product, regardless of whether the supermarket or the producer caused the incident. We concluded that the effects of food safety incidents are *not* limited to the actor who technically caused the incident. This also supported our conclusion, based on the results of the focus groups, that consumers are not really interested in who is formally responsible for an incident, but hold a more holistic view on responsibility. Supply chain members should, therefore, realize that if they argue that a food safety incident could have been avoided by *the other party*, the effect can backfire on all, including the product. It also implies that supply chain members cannot escape their attributed responsibility.

We also observed that incidents with perceived *culpable* causes- like not complying with hygiene codes- and that were also perceived as having a repetitive (stable) character were found to lead to the *lowest* pre-trust ratings. This follows the line of increasing levels of blame for an act identified by Heider (1958) and applied by, among others, Fishbein and Azjen (1973) and Fincham and Jaspars (1980). The inferred intention to cheat consumers has a disastrous effect on trust. It is, therefore, not surprising that food safety scandals like the use of hormones in meat by farmers, the mixing of oil unsuitable for human consumption in cattle feed, and fraud with best-before-dates evoke strong reactions.

These findings about the differential effects of food safety incidents on trust contribute in our opinion to attribution theory, according to which the external cause is traditionally limited to one party.

Food safety incidents can be avoided by supply chain members

We also conclude that, in general, consumers take the view, more than expected, that supply chain members can avoid incidents. Supply chain members should consider this when designing procedures for crisis communication. The perception of consumers of what is 'controllable' does not necessarily match with the view of professionals. The controllability of the incident in which a temporary illness was caused by the sensitivity to certain food ingredients of an elderly consumer is interesting with respect to the aging population, and the number of people who suffer from allergy or food intolerance. Consumers somehow blame all parties in such situations. Retailers and producers clearly have the important task of informing consumers sufficiently about possible intolerance effects. It seems consumers expect supply chain members to warn groups of consumers who are vulnerable.

Larger attribution of responsibility to the supermarket

We concluded that producer and retailer share the negative effects on trust of controllable incidents caused by one of them; the same holds even stronger for the effects of controllable *and* stable events. With respect to *responsibility,* however, we found a strong indication that more responsibility is attributed to the supermarket if incidents are caused by the producer, but not the other way round. We expect that this difference is due to the perceived position of the supermarket in the supply chain: supermarkets are the last station able to block products from entering the market. The remarks made by retailers about the specific position of the supermarket and the conductor's role resulting from this are in that respect understandable. As far as the effect on pre-trust is concerned, the impact of incidents did not differ to a large extent between the supply chain members. However, we found that more blame is attributed to supermarkets if they caused an incident with a product group that is perceived as risky.

Differential effects between product groups

Both the chicken product group and the ready-to-eat meals product group are perceived as less safe than many other product groups. The main effects of food safety incidents on trust, therefore, did not show differences between the two product groups in our experiment. However, if an incident was stable and controllable, and induced by one of the supply chain

members, the negative effect on pre-trust in this supply chain member was much stronger for chicken than for ready-to-eat meals, whereas the effect on the product itself (chicken) was not affected. We explained the non-significant effect on the product by the general awareness of chicken as a risky product group and its involvement in several large-scale food crises. These findings suggest that, despite the shared risky character of the two product groups, the blame placed on supply chain members is more profound if products generally known to be risky are involved.

Finally, from a methodological point of view, we observed a relatively high correlation between controllability and responsibility. This observation was already made by Oliver (1997), who stated that locus frequently interacts with controllability. Measuring only locus or controllability might be an acceptable option.

Chapter 5 The Effect of Food Safety Response on Consumers' Trust: *What should we do?*

Companies sometimes misclassify a problem, focusing on the technical aspects and ignoring issues of perception

Norman Augustine, 'Managing the Crisis You tried to Prevent' 1995, Harvard Business Review

5.1 Introduction

To respond in an adequate way to a food safety incident is of paramount importance for those who are professionally involved in farming, producing, and distributing, as we posed in the introduction. The reasons are threefold: (1) firms should take measures, based on the precautionary principle, to avoid (further) physical harm (Franzone 2000; Van der Roest, Beekman, and Berg 2003); (2) firms need to protect their reputation (Doeg 1995; O' Reilly 2002; Patterson 1993; Siomkos and Kurzbard 1994); and (3) to remain product, brand and store loyalty. We concentrated on measuring the effects of supply chain responses on the consumer's attitude, and behavioral intentions.

Consumers may react to a food safety incident in various ways, ranging from simply ignoring it and treating the negative consequences of consumption, to a complete boycott of a supplier, retailer, or product group (see Table 5.1). For instance, following the BSE crisis, 30% of consumers in the Netherlands said in 2001 that they changed their meat consumption, either by eating less meat or by eating fish or other products instead (Vis and Koelen 2002). In the UK (Fearne 1999) and Germany (Pennings, Wansink, and Meulenberg 2002) the sales drop was even more serious. This implies that firms are forced to take action and reverse the trend if confronted with negative effects of a crisis. A key question then is what makes a response effective.

TABLE 5.1

CONSUMER REACTIONS TO FOOD SAFETY INCIDENTS

To product:

- Avoid product in future (or reduce consumption)
- Product or brand switching (substitutes or non-contaminated products)
- Averting actions (cooking, storage) to prevent illness
- Treatment of illness

To producer/supplier/others:

- Voice complaint to retailer or producer/seek redress
- Negative word-of-mouth communication
- Take legal action
- Boycott supplier or retailer
- Complain to public or private agencies

Based on: van Ravenswaay and Hoehn (1996a, 1996b); Singh (1988); Day and Ash (1979); Day and Bodur (1978); Day and Landon (1977)

As mentioned in Chapter 3, there are in our opinion two *sources of knowledge* that can help in the formulation of a response to a food safety incident: the *complaint handling* literature and the *crisis management* literature. We learned from the interviews with supply chain members that procedures for complaint handling and dealing with crises are often complementary. We briefly review both sources of knowledge

Complaint handling

A substantial number of consumers do not undertake any kind of action if they experience a product failure. Stephens and Gwinner (1998), who examined a large number of surveys of consumer complaint behavior, found that up to two thirds of consumers do not report their dissatisfaction. A similar figure was found by Andreason and Best (1977). Alsbury and Jay (2002) also reported a high level of non-complaint: 83% of complaints about small packaged goods were not articulated. This is in line with the findings of A.C. Nielsen (Tarp 1997), who found that 70% of consumers would either do nothing or discard the product. Despite the relative low percentage of consumers who actually seem to complain, firms should devote sufficient attention to complaints, and the way complaints are treated, for at least two reasons.

The first reason is the relationship with behavior. For instance, Richins (1983) found that, if a consumer was strongly motivated to take action as a result of the level of dissatisfaction, a less positive perception of the retailer's responsiveness (for instance, the time it took to complain, difficult complaint-handling procedures, rude treatment) increased

the likelihood of negative word-of-mouth activities and stimulated non-complaining behavior. Singh and Wilkes (1996) also found that the level (or intensity) of dissatisfaction was an important antecedent of complaint behavior, in addition to prior experience, attribution of blame, perceived responsiveness of the company, and the attitude of the consumer to complaining.

The second reason is complaints are sometimes indicators of a more serious event; complaints are then the tip of the iceberg. Since most companies are aware of this phenomenon, they classify incoming complaints in categories, and prioritize them according to the action that should be taken, which depends on the size and the seriousness of the complaints. Top priority is (or should be) given (O' Reilly 2002) to complaints about alleged injury or illness from products, tampered products, or products with foreign objects, or products with seriously defective packaging. To distinguish between a complaint which indicates risk of harm and a complaint which in reality is routine dissatisfaction of a customer, or even a complaint made by a habitual or fraudulent complainer, requires the knowledgeable judgment of an experienced (quality) control manager (Hines 2005; O' Reilly 2002) and adequate reporting systems.

The retailer has a prominent role in this complaint handling process, as retailers seem to be the first to receive complaints. More than fifty percent of the consumers in the survey by Day and Landon (1977) returned with the product to the store for a replacement or a refund (25%), or to make a complaint (22%). Only 5% contacted the manufacturer directly to complain, a significantly lower percentage than the percentage of respondents who experiences a failure with a durable product and contacted the manufacturer. A similar conclusion was drawn by Alsbury and Jay (2002). In this study, 67% of consumers said they preferred to return to the shop where they purchased the product.

The way complaints are handled has a major impact on customer satisfaction, customer loyalty, worth-of-mouth activities, and ultimately the performance of the company involved (Bolton and Bronkhorst 1995b; Tax, Brown, and Chandrashekaran 1998). In particular, the perceived justice of the complaint handling influences customer satisfaction with the recovery of a service or product failure. Consumers want to be treated fairly and want *justice* if they make a complaint about a service, but also when they are confronted with a product failure (Folkes 1984). Smith, Bolton, and Wagner (1999) found in service failure recovery encounters that customer satisfaction is positively related to perception of justice.

Three dimensions have evolved over time with respect to this concept of justice (Blodgett, Hill, and Tax 1997; Maxhamm and Netemeyer 2002; Tax, Brown, and

Chandrashekaran 1998): *distributive justice* (the final outcome of the complaint-handling procedure such as the correction of charges, refunds, free repairs, free products, or replacement); *procedural justice* (the perceived fairness of the procedure followed in the complaint-handling process, including aspects like speed and flexibility) and *interactional justice* (the interpersonal behavior of those who handle the complaint, encompassing aspects like perceived honesty, politeness, empathy, and effort). There is a substantial stream of research in which were found strong effects of consumer reactions to a dissatisfactory experience with a product or a service, and the effects of perceived justice on satisfaction, and subsequent behavioral intention (Blodgett, Hill, and Tax 1997; Bolton and Bronkhorst 1995a; Bougie, Pieters, and Zeelenberg 2003; Day and Bodur 1978; Goodman, Ward, and Broetzmann 2001; Krishnan and Valle 1979; Maxham and Netemeyer 2002; Resnik, Gnauck, and Aldrich 1977; Smith and Bolton 2002). We expected to find the same relationship between channel response, post-trust, and behavioral intention with respect to food safety incidents.

Maxham and Netemeyer (2002) found that procedural and interactional justice had a stronger influence on satisfaction than perceived distributive fairness in the case of service recovery. We expected a similar effect on post-trust in the supermarket and the producer, as consumers always perceive a food safety incident as serious matter, even if it results in only a temporarily illness.

Crisis management

Complaints sometimes turn out to be signals of an approaching serious incident, and grow into real crises. Covello (1995), cited by Grant and Powell (1999 p.3), describes a safety, a health, or an environmental *crisis* as 'an unplanned event which triggers a real or perceived threat to safety, health, or environment, or to the organization's reputation or credibility. A crisis has the potential to significantly impact the company's operations or to pose a significant environmental, economic, reputational, or legal liability'. Complaints can usually be handled at lower levels of an organization (customer service department). Crisis management, conversely, is substantially more complex (see Table 5.2), and requires the involvement of higher ranks in the organization, often even of executive board members. Decision-making is often not without risk (e.g., decisions to recall products and to make public announcements) and high costs are involved. O'Reilly (2002 p.3) describes crisis management as 'a process by which a company recognizes, identifies and respond to a crisis both within the organization and in dealing with external constituencies'

TABLE 5.2

CHARACTERISTICS OF COMPLAINT HANDLING VERSUS CRISIS MANAGEMENT

	Complaint handling	**Crisis management**
Size:	Micro	Meso/macro
Level of management involvement:	Low	Medium/high
Company risk:	Low	Medium/high
Duration:	Short	Medium/long
Cost involved:	Low	Medium/high
Complexity:	Low/medium	Medium/high
Problem solving	Mostly routine	Specific

The main stream of literature about crisis management is managerial oriented and focused on particularly the communication aspects. *Types of crises* are described by, for instance, Pearson and Mitroff (1993), Marcus and Goodman (1991), Egelhoff and Sen (1992), Coombs (1995), Riezebos (1996), Mitroff (2001), and Rosenthal (1998). Various types of *crisis response strategies* are also identified, for instance, by Coombs (1998; 1995; 2002; 2000), Coombs and Holladay (1996; 2004), Tybout, Calder, and Sternhal (1981), Martinelli and Briggs (1998), and (Hearit 1994; Hearit 1997; Hearit 1996). Formulating a crisis response strategy is the step that follows after the type of crisis has been established.

Dawar and Pillutla (2000) place company reactions to a crisis on a continuum with, at one end, *'unambiguous stonewalling'* and, at the other end, *'unambiguous support'*. Unambiguous support consists of (Dawar and Pillutla 2000 p.216) 'assumption of responsibility, an apology to consumers or other affected constituencies and some form of remedy, such as a voluntary product recall and free replacement'. Stonewalling (Dawar and Pillutla 2000 p.217) consists of 'a denial of responsibility and absence of remedial measures or no communication at all'.

A more or less similar positioning is suggested by Siomkos and Shrivastava (1993), who also range company responses from low to high on a continuum: from *denial, involuntary recall,* and *voluntary recall* to a *'super effort'*. The 'super effort' encompasses an immediate voluntary recall of the product, massive advertising support to announce the recall, offering very convenient ways to return the product, free samples and/or coupons for the returned product.

Empirical results of the effects of different responses to a crisis are relatively scarce (see Table 5.3). We expect that this is partially explained by the unexpected character of crises that makes it difficult to prepare a test, in particular a comparative test, and also the sensitive character of the subject for companies. Knowledge about the results of individual strategies are, therefore, mainly case-based. However, there is some empirical research to build on. For instance, Siomkos and Kurzbard (1994), Coombs and Holladay (1996), Dawar and Pillutla (2000), de Raaf (2000), and Klein and Dawar (2004) are among the few scholars who researched in field studies or experiments the effects of product-harm crises and response to these crises. Siomkos and Kurzbard (1994) found that a positive perception of company's response to an incident had a positive effect on consumer's attitude to the company. Coombs and Holladay (1996) Coombs and Holladay (1996) found support for their hypothesis that a matched response by the company (a response strategy based on the type of crisis and the attribution made by the public) caused less reputational damage than unmatched responses or no response at all. They also found evidence that crises caused unintentionally were less harmful than intentional acts (transgression), and that a negative history of many crises within a company were more harmful than a history with only one incident. De Raaf (2000) found that if an incident is caused by the organization itself, a high level of perceived controllability leads to severe brand damage, regardless of the track record of the company. A negative history of the company (previous incidents are known) leads to serious brand damage even if the controllability of the incident is perceived as low. Brand awareness (well-known versus unknown brands) was not found to have a significant effect on attributed controllability and blame, probably, as de Raaf (2000) stated, owing to the student population used in the study; in a sample of less-educated respondents, brand awareness might serve more as a buffer. De Raaf (2000) further examined the effects of four different response strategies, primarily based on the response strategies put forward by Coombs, in combination with different combination of locus (internal versus external) and controllability (low versus high). A mortification strategy (asking for forgiveness) came out as relatively the best strategy, whereas externalization (denying responsibility) was the worst strategy. Dawar and Pillutla (2000) found that purchase intention was influenced by the perceived response of the company, in particular by the purchasers of the brand involved. In a later experiment, the authors found that firms that chose not to respond to an incident ('stonewalling') suffered significantly more loss of brand equity than did companies which responded unambiguously.

TABLE 5.3

RESEARCH FINDINGS WITH RESPECT TO CRISIS RESPONSE STRATEGIES

Author:	Primary focus:	Nature:	Major recommendations:
Wynne and Hoffer (1976)	Product recall	Survey	No effect of product recall on marketshare unless a series of recalls on the same product model
Weinberger and Dillon (1979)	Product information	Experiment	(1) unfavourable product ratings have greater impact on purchase intention than favourable ratings; (2) unfavourable information from independent agency/peers have more impact than information from trade or professional association; (3) more reliance on outside sources when buying service than when buying product
Mowen (1980)	Product recall	Experiment	In a 2x2x2 full factorial design, manipulating (1) familiar or unknown company, (2) voluntary or forced recall (3) and company's track record with product failures, outcome was: familiar company seen as less responsible for defect compared to unfamiliar company; company is perceived as more responsible for the failure if act before intervention (forced recall)
Simpson and Mowen (1981)	Product recall	Survey	Little influence of recalls on stock prices; markets adjust to product recalls
Tybout et al. (1981)	Communication	Experiment	In an experimental setting , using rumours around McDonalds using red worm meat in its hamburgers, a storage strategy and a retrieval strategy showed to be an effective communication strategy. A refutation strategy was not successful.
Mowen et al. (1981)	Product recall	Survey	Respondents were asked to give their opinion on recent product recalls and give their perception of the company. The perception of the company was as the dependent variable. Predictor variables: (1) knowledge of the recall; (2) impression of the danger of the product; (3) company's social responsibility; (4) company's responsibility for the defect; (5) length of time to make the recall ; (6) recall of other companies; (7) previous recalls of the company. Results revealed all predictor variables influence perception of the company, except length of time to make a recall and previous recalls (expectation moderating variables)

TABLE 5.3 (cont'd)

RESEARCH FINDINGS WITH RESPECT TO CRISIS RESPONSE STRATEGIES (cont'd)

Author:	Primary focus:	Nature:	Major recommendations
Siomkos and Shrivastava (1993)	Strategy	Experiment	Main determinant of success in a crisis is reaction of consumer. Manipulating company reputation, external effect and company response, it was found: (1) company reputation mediates level of trust in company;(2) if media (external effect) react positively consumers view company more favourable; (3) company is perceived as more responsible if it acts (in particular recalling products) before regulatory agencies take action. Recommendation to avoid denying responsibility; to act quickly. Companies with low reputation should initiate a 'super effort'
Siomkos and Kurzbard (1994)	Strategy	Experiment	A favourable company's reputation offers better protection against consumer's feelings of danger relatively to company's with a weak reputation. Denial of responsibility and involuntary recall have a negative effect on consumer's attitude to the firm
Coombs and Holladay (1996)	Communication	Experiment	Matched crisis response strategies cause a less negative effect on company reputation than unmatched strategies or no response; track record of a company with respect to crises influence image repair; unintentional causes (accidents) are less harmful the intentional causes (transgression)
Coombs (1998)	Strategy	Experiment	Perception of locus, controllability (type of crisis) and companies history of crisis impact organizational image and should lead the choice of a strategy
Dawar and Pillutla (2000)	Strategy	Survey	Users of a brand involved in a crisis are more aware of the crisis and sensitive to the response of a company whereas users of other brands in the product group are more focussed on the risk aspect. Purchase intention influenced by perceived crisis response of the company
De Raaf (2000)	Communication	Experiment	A mortification strategy (ask for forgiveness) most effective strategy; externalisation strategy is the worst choice; if crisis is perceived as high controllable by the company, type of response doe not make much of a difference;
Klein and Dawar (2004)	Strategy	Experiment	Corporate Social Responsibility (CSR) mediates the impact of product-harm crisis on consumer's brand evaluations and purchase intention but only for those consumers who are sensitive to CSR. Companies with a perceived weak image of CSR are more vulnerable to a loss of corporate or brand image and purchasing loyalty.

Responding to an incident

Responding to an incident, preferably with a response that matches the attribution consumers make, is clearly more effective than non-response or unmatched responses. The question then is, what are the ingredients of an effective response? In Chapter 1 we defined effectiveness, within the context of our study, as 'the intended or expected effect on consumers' attitudes and behavioral intentions'. The literature on *complaint handling* identified fair treatment of the complaining consumer as a key ingredient, which is sometimes even more important than compensation. Siomkos and Shrivastava Dawar (1993) and Pillutla (2000) mention offering apologies, taking responsibility for an incident, voluntarily recalling products, free replacement, and offering convenient ways to return products as key ingredients. A review of the *crisis management* literature showed (see Table 5.4) that authors have similar opinions about what should be the core attributes of a crisis response strategy, like being frank, open, and honest (Anthonissen 2002; Arnstein 1994; Covello and Allen 1988; Lukaszewski 1997; Mitroff and Anagnos 2001; Patterson 1993; Siomkos and Kurzbard 1994; Siomkos and Shrivastava 1993), showing compassion and accountability (Anthonissen 2002; Covello and Allen 1988), being open to questions (Anthonissen 2002; Patterson 1993), offering apologies to those who are harmed (Hearit 1994), and recalling products if necessary (Hearit 1994; Siomkos 1999).

Based on this review of literature, we argue, in addition to creating feelings of *fairness*, there are three key actions in a crisis response strategy: (1) remedial action, in particular *to recall a product* to limit further damage; (2) to show *compassion*, and (3) to *communicate* about the crisis. We briefly discuss these three attributes below.

TABLE 5.4

RECOMMENDATIONS WITH RESPECT TO CRISIS-RESPONSE STRATEGIES

Author:	Primary focus:	Nature:	Major recommendations:
Covello and Allen (1988)	Communication	Guidelines	(1) accept and involve the public as a partner; (2) plan carefully and evaluate efforts; (3) listen to the public's specific concerns; (4) be honest, frank, and open; (5) work with credible sources; (6) meet the needs of the media; (7) speak clearly and with compassion
Kurzbard and Siomkos (1992)	Communication	Guidelines	(1) Send out clear, non-conflicting, messages; (2) do not overreact; (3) do not downplay the severity of an incident
Patterson (1993)	Communication	Guidelines	(1) prepare a crisis media plan; (2) name a company spokesperson; (3) brainstorm about possible crises and discuss possible responses; (4) deal with a crisis (don't hide); (5) have all the facts; (6) respond to every media question; (7) never lie; (8) never volunteer negative information; (9) never go off the record; (10) don't use business jargon
Birch (1994)	Crisis management	Guidelines	(1) prepare for crisis (plan, train, build/enhance corporate reputation); (2) manage crisis (identify problem, set feedback, respond quickly, honestly, person-to-person); evaluate post-crisis (maintain relationships, communicate proactively, and build on reputation)
Arnstein (1994)	Communication	Guidelines	In order to (re) build credibility: (1) be truthful; (2) take control of the situation; (3) arrange two-way communication; (4) develop a prompt and clear response; (5) involve employees; (6) be first to tell the story; (7) emphasize the positive aspects of the company
Hearit (1994)	Crisis management	Guidelines	Take immediate and unambiguous remedial action; issue apology, voluntary product recall, and restitution
Fitzpatrick (1995)	Communication	Guidelines	In 24 out of 39 cases, a legal strategy was applied by companies; in 7 cases, a public relations strategy was followed; in 8, a mixed strategy. A collaborative approach of legal and public relations professionals is recommended
Coomb (1995)	Crisis management	Guidelines	Base the choice of response strategy upon the attribution made by the public.

TABLE 5.4 (cont'd)

RECOMMENDATIONS WITH RESPECT TO CRISIS RESPONSE STRATEGIES (cont'd)

Author:	Primary focus:	Nature:	Major recommendations
Riezebos (1995)	Communication	Guidelines	Avoid ambiguity by supplying missing information and correcting inaccurate information; react quickly and adequate.
Dedmon (1996)	Communication	Guidelines	Establish crisis communication team, their responsibilities and procedures; nominate and train spokesperson; avoid common mistakes like: defensive or bunker mentality, complicating a complicated story, misidentifying the real issue, having no strategy.
Lukaszewski (1997)	Communication	Guidelines	Communication should reflect: openness, accessibility, willingness to respond, truthfulness, and honesty. Communication protocols should be build on: responsiveness, openness, concern, respect, cooperation with media, responsibility, sensitivity, integrity, compassion.
Clarke and Company (1997)	Communication	Guidelines	Avoid: (1) unpreparedness; (2) absence; (3) ignorance; (4) silence; (5) distance, (6) fabrication, (7) naiveté
Siomkos (1999)	Crisis management	Guidelines	(1) avoid further harm by immediate withdrawal/recall of products if needed; (2) set in place process to remedy problem; (3) communicate clear and honest; train public spokesperson; ensure internal communication about problem, cause and remedy; establish easy access for the media; manage press contact; set up means; for customer to contact organisation; provide a simple brief on the problem to the customer; don't give medical advice; inform government and other authorities; don't try to wriggle out if officials identify a problem;
Mitroff and Anagos (2001)	Crisis management	Guidelines	Prepare for different types of crisis (economic, informational, physical, human resources, reputational, psychopathic acts, natural disasters); acknowledge responsibility; avoid self-deception; be open (realize there a no secrets); do not act as the 'real' victim; do not try to hide behind half-truths; respond to the emotional reactions.
Anthonissen (2002)	Communication	Guidelines	Make thorough crisis plan; prepare crisis strategy from the perceptive of stakeholders/media. Be open, give details about the incident; show compassion, emphasize good reputation of company; be open for questions.
O'Reilly (2002)	Crisis management	Guidelines	Regarding complaints: (1) treat every caller with respect; (2) monitor development of complaints and alarm higher levels of management in case of different complaint pattern. Prepare crisis manual and rehears.

Recalling a product

The first remedial action members in the supply chain should take in case of life- or health-threatening food safety incidents is to prevent (further) damage to humans or animals. Recall of existing stocks of the product at wholesale and retail outlets is then inevitable. A recall is defined as[1] *a firm's removal or correction of a marketed product that is in violation of applicable laws and may pose a potential hazard to public health.* A public announcement is sometimes necessary, to warn consumers not to use the product they have at home and to return it to the retailer or throw it away. The harmonization of food safety legislation like the General Food law in Europe, but in particular the introduction of the precautionary principle, seems to be a reason why supply chain members take fewer risks in postponing product recalls or deciding not to recall products at all. Also, the growth of consumerism and the more complex character of products (which makes products more prone to failure) give rise to the number of product recalls (Abbott 1991). Small product defects are often reason to withdraw a product from the market or to recover the stock of a product. Smith, Thomas, and Quelch (2000) reported an increase from 221 recalls covering 8 million product units in 1988 to 367 recalls covering 28 million product units in 1993. In the Netherlands in 2004, a total of 25 recalls of food products were reported to the Dutch Food and Consumer Product Safety Authority (VWA).

A recall should be in line with the size and the seriousness of the incident (Smith, Thomas and Quelch 2000). 'Overkill' may lead to a misperception by consumers and induce the idea that consumers have escaped a dangerous threat. A recall should also not be made too soon, as it may give credibility to an unsubstantiated charge and may open the door to a larger number of lawsuits. A voluntary product recall is seen as a brand-supportive measure, signaling to consumers the commitment of the company to the brand (Dawar 1998).

Compassion

Recommendations to management with respect to communication during a crisis are often conflicting. Lawyers mostly recommend that management make as few statements as possible, in order to prevent these statements from harming the company in the event of legal proceedings. However, marketing and communication executives strongly advocate as much openness as possible from the beginning of the incident. Fitzpatrick and Rubin (1995) distinguish in that respect a continuum with at one end the traditional public relations strategy and at the other end the traditional legal strategy. The *traditional public relations* strategy

[1] FDA (2000) "MRA recall procedure" (accessed April 5, 2005), [available at: /www.fda.gov].

concentrates on obtaining public forgiveness through investigation of the allegations, announcement of the company policy on the subject, a candid attitude, voluntary admission of the problem, and announcement that measures will be taken to correct the situation. The *traditional legal* strategy is to say nothing or as little as possible, to deny guilt, or to shift the blame to others. Martinelli and Briggs (1998) examined the approach chosen in the case of Odwalla Inc. In this food-related incident, Odwella, a leading supplier of unpasteurized fresh juices in the US, was confronted with a serious E Coli bacterial contamination. Martinelli and Briggs (1998) found, using content analysis of press articles, that the response was mainly dominated by a public relations strategy followed by a mixed strategy of public relations elements and legal elements. This strategy seems to have worked successfully. Our interviews with supply chain members showed that the choice of a strategy is often difficult; corporate rules sometimes force subsidiaries to follow the legal strategy. Coombs (1999) goes one step further and argues that in the public relations strategy compassion with the victims, like consumers who became sick from food poisoning, should be given most attention. He describes compassion as acknowledgement and expression of concern for victims' needs; compassion suggests that the organization cares about those who suffered.

Communication

There is little doubt about the importance of communication during and after a food safety crisis. Communication is an essential link between information on food safety and consumer behavior, as de Boer, Willemsen, and Aiking (2003) concluded after analyses of four food safety incidents. A quick response to an incident is needed, on the one hand, to provide consumers with timely information and, on the other hand, to avoid unnecessary concern and emotional reactions. Nevertheless, companies prefer to solve a crisis without paying attention to the media and to recall products in silence. However, companies often can not escape publicity, as the chief executive of Burson-Marsteller stated (quoted by Doeg, 1995): 'What makes a problem into a crisis is the media, or in some instances, the likelihood of media attention (p. 1) ... if the media says it is a crisis it is, and your performance will be judged by the special criteria the media has taught the public to apply to crisis management' (p. 39). Communication is, therefore, a focal point in a crisis-response strategy and the central theme for the public relations approach. Communication during the crisis also offers the opportunity to make an early start in recovering trust in the product and the companies involved.

In short, responding adequately to a food safety incident is of eminent importance for supply chain members to maintain or restore trust and loyalty. Fair treatment of consumers who

experience a food safety incident, recalling products if needed, showing compassion, and open communication are, in our opinion, key actions.

5.2 Research hypotheses

In line with findings from the complaint-handling literature and crisis management literature, we formulated a set of six hypotheses to examine the effects of the supply chain response on trust and behavioral intentions of consumers. As the procedural element in complaint handling is covered in elements of a crisis policy, we limited our investigation to the distributive and interactional aspects of complaint handling. Hypotheses 6, 7, and 8 concerned the effects of the *measures* taken; Hypotheses 9 and 10 covered the effects of the perceived response on *post-trust*; Hypothesis 11 referred to the effect of trust on *behavioral intentions*.

The results of the focus groups with consumers showed that consumers are primarily interested in *what* caused the food safety incident. However, the technical cause is often not immediately known. A supermarket, which is mostly the first supply chain member that consumers contact, may offer to inform the consumer involved about the results of the inquiry they intend to make about an externally caused incident. We hypothesized the following:

Hypothesis 6

> *An apology made by the supermarket for an externally caused food safety incident which is accompanied with the service of informing the consumer about the results of an inquiry into the cause of the incident will have a significantly more positive effect on perceived interactional justice than an apology without that service.*

Based on a review of the crisis management literature we concluded that speed of a product recall in case of a major incident is an important element in the response of supply chain members. Mowen (1980) found in an experiment with durable products that the length of time taken to recall the product influenced consumer perception of the company as well as the repurchase intention. More delay in recalling led to a more negative view of the company. However, the cause of an incident or the seriousness of an incident is sometimes not instantly

known and investigation of the incident is needed. This makes it difficult for the supply chain members involved to decide on the appropriate time to recall products: immediately or when the results of a preliminary investigation are known. Assuming speed of recall is the most important factor, we hypothesized the following:

Hypothesis 7

> *An immediate product recall in case of food safety incidents caused by the supermarket or producer will have a significantly more positive effect on consumers' perception of the initiative that is taken than product recalls that are initiated after a preliminary inquiry.*

Hypothesis 8

Our review of the crisis management literature showed that communication experts unanimously recommend being frank and open in case of a crisis (Covello and Allen 1988; Patterson 1993; Siomkos and Shrivastava 1993; Arnstein 1994; Siomkos and Kurzbard 1994; Lukaszewski 1997; Mitroff and Anagnos 2001; Anthonissen 2002) . Simultaneously, lawyers recommend that companies not admit responsibility, in order to prevent potential claims. Our interviews with the supply chain members showed that whether or not to admit responsibility is a delicate issue. We assume that expression of feelings of responsibility to a consumer who has experienced a food safety incident has a positive effect on perceived compassion, as does being open about an incident. However, we assume that the interaction effect would even be stronger. We hypothesized the following:

> *Expression of feelings of responsibility to a consumer who experienced a food safety incident caused by a supermarket or producer has a significant positive effect on perceived compassion relative to rejecting responsibility (8a).*
>
> *Being open about a food safety incident caused by a supermarket or producer has a significant positive effect on perceived compassion relative to failing to provide information about an incident (8b).*
>
> *The interaction between expressing feelings of responsibility and being open in communication about an incident caused by a supermarket or producer has a stronger effect on perceived compassion than the individual effects of expressing feeling s of responsibility and being open (8c).*

Hypothesis 9

Maxham and Netemeyer (2002) found that, in the context of a service failure (bank service), procedural and interactional justice had a stronger influence on satisfaction than had the perceived distributive justice. We expected a similar effect on post-trust for food safety incidents, *even* if the consumers themselves caused them. Our survey among consumers showed that consumers *always* regard a food safety incident as serious; we expected fair treatment (honesty, efforts to inform the consumer about what caused the incident) to exceed the importance attached to compensation. We argue as follows:

> *In case of consumer-induced food safety incidents, interactional justice has a positive effect on post-trust in the supermarket and the producer (9a).*
>
> *In case of consumer-induced food safety incidents, distributive justice has no effect on post-trust in the supermarket and producer (9b).*

Hypothesis 10

Studies of the complaint behavior of consumers suggest that if consumers experience a product failure and decide to complain, they most often return to the retailer (Day and Landon 1977; Alsbury and Jay 2002). This implies that the retailer (supermarket) is the front office; judgment of perceived fairness (interactional justice, distributive justice) and compassion, therefore, primarily affect post-trust in the supermarket. We expected, however, that perception of the initiative that is taken in response to an external induced food safety incident would affect both supply chain members. We pose the following:

> *Better judgment of the initiative that is taken in response to an externally caused food safety incident positively influences post-trust in both the supermarket and the producer (10)*
>
> *Better judgment of the initiative that is taken in response to an externally caused food safety incident positively influences post-trust in the supermarket (10 a)*
>
> *Better judgment of the initiative that is taken in response to an externally caused food safety incident positively influences post-trust in the producer (10 b)*

Hypothesis 11

The literature (Bolton and Bronkhorst 1995; Blodgett, Hill et al. 1997; Goodman, Ward et al. 2001; Maxham and Netemeyer 2002; Smith and Bolton 2002) shows a positive relationship between satisfaction with a service recovery and loyalty, and a negative relationship between satisfaction and the intention to complain. We expected a similar relationship between post-trust and loyalty to the supermarket and the product, and also between post-trust and negative-word-of-mouth intentions regarding the supermarket and producer. We expected that effects of the perceived response to the behavioral intention would be mediated by post-trust. Moreover, we expected that behavioral intention and post-trust would also be influenced by pre-trust as a function of the trust that remains after the incident. We pose the following:

Pre-trust has a positive effect on loyalty and a negative effect on negative word-of-mouth activities (11).

Pre-trust has a positive effect on loyalty to the supermarket and a negative effect on negative word-of-mouth activities regarding the supermarket (11a).

Pre-trust has a positive effect on loyalty to the product and a negative effect on negative word-of-mouth activities regarding the producer (11b).

Post-trust has a positive effect on loyalty to the supermarket and a negative effect on negative word-of-mouth activities regarding the supermarket (11c).

Post-trust has a positive effect on loyalty to the product and a negative effect on negative word-of-mouth activities regarding the producer (11d).

Post-trust mediates the effect of perceived response on behavioral intentions (11e).

5.3 Method

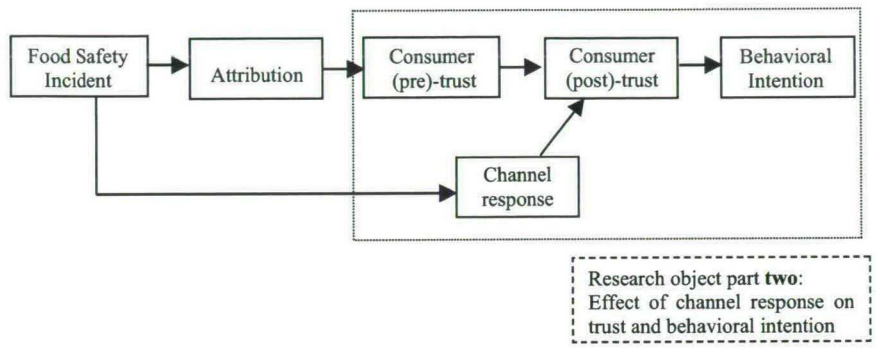
Research model

As explained in the introduction (see Chapter 1), we examined in the second step the effects of various responses by the supply chain members on consumers' (post-) trust in the supermarket, the producer, and the product. It was expected that the difference between pre-

trust and post-trust would indicate what the effects were of various responses, and what elements in the response contributed most to the effect. Subsequently, we measured the intentions respondents expected consumers would have with regard to word-of-mouth activities and repurchase intention (see part two in Figure 5.1)

FIGURE 5.1

RESEARCH MODEL

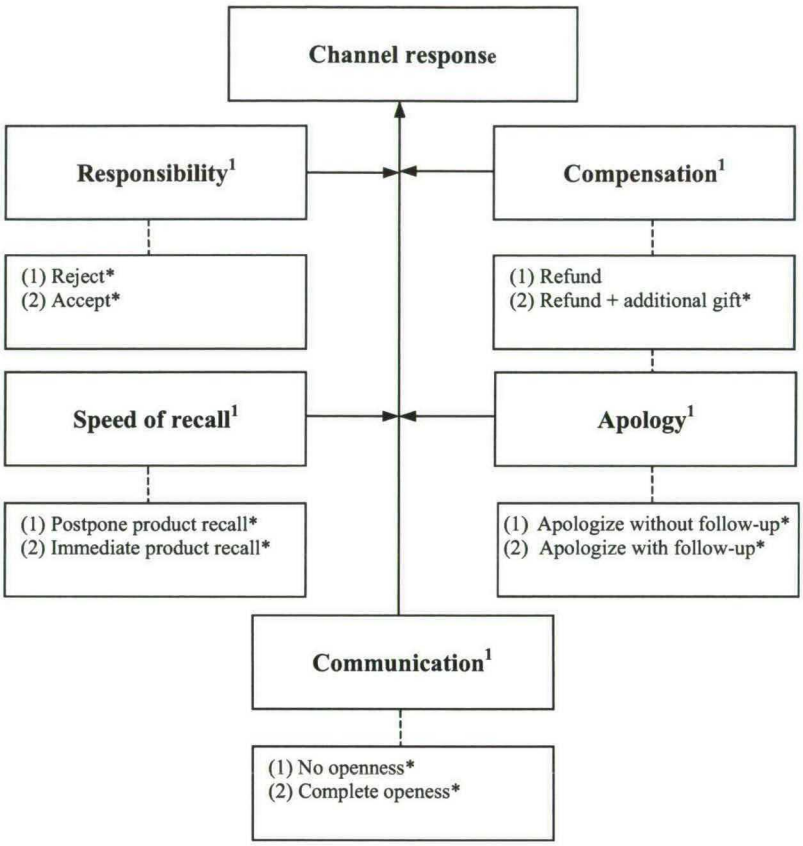


Manipulations

We manipulated the vignettes of the supply channel response. Each vignette was built on five similar response attributes, each with either a high level or a low level (see Figure 5.2). In total 32 (2^5) combinations were possible. The high and low levels referred to the different levels of each of the attributes or measures. For instance, a consumer who experiences a food safety incident and who returns to the supermarket can be compensated simply by reimbursing the purchase price (low level) or the supermarket may also give some kind of a gift (high level). By manipulating the levels, we were able to measure the effect of the difference.

FIGURE 5.2

CHANNEL RESPONSE STRUCTURE



[1] = attribute/measure

* = response level

Development of stimulus material

Similar to the development of the vignettes of the food safety incidents used in the first part of the experiment, the vignettes of the supply chain responses were systematically developed and extensively pre-tested. In focus groups with consumers, experts and supply chain members first of all a list of possible measures supply chain members could take in response to a food safety incident, all derived on a literature review, were discussed. Discussion topics were amongst others realistic character of the measures, clarity, importance, effects and possible experiences. The results showed a remarkable similarity (see Table 5.5)

TABLE 5.5

RANKING OF IMPORTANCE OF POSSIBLE RESPONSES TO FOOD SAFETY INCIDENTS

1= most important measure
7= least important measure

	Consumers	Supply chain members	Experts
N=	24	12	8
Measure:			
Recalling suspect products	1	1	1
Admitting responsibility	2	2	4
Informing the media	3	4	2
Making apologies	4	5	5
Being available to answer questions	5	3	3
Refunding the product	6	7	6
Preventing negative publicity	7	6	7

Limiting further possible damage by recalling suspect products was considered the most important step. Consumers and supply chain members shared the opinion that to admit responsibility for an incident was the second most important measure. Some consumers remarked that the confession by a producer in public that something has gone wrong is more important than refunding the price of a product. Experts explained their choice for the (lower) priority of admitting responsibility by pointing to the legal complications of such an admission. Lowest priority was given to refunding the price of a product and avoiding negative publicity. One supply chain member and one expert remarked that the actions that had to be ranked expressed a certain logical sequence, starting with restricting further disaster by recalling products and informing consumers about the incident, and finally trying to minimize possible damage to the reputations of the companies involved. Based on the results of this exploratory survey, draft vignettes were developed based on the five different attributes or measures and the two levels. The composition was as follows:

- Responsibility

The supermarket said a food-borne disease could have several causes, mostly caused by the consumer himself; therefore, the supermarket could not be held responsible (*low*

responsibility) *or* the supermarket said it felt always responsible for the quality of a product bought in their store, regardless of who is responsible for a defect (*high responsibly).*

- Apology

The supermarket only apologized for what happened to the consumer (*low apology*) *or* the supermarket apologized for what happened to the consumer and promised to inform the consumer about the results of an investigation into the cause *(high apology*).

- Compensation

The supermarket refunded only the purchase amount (*low compensation*) *or* the supermarket refunded the purchase amount and added a voucher as compensation for the inconvenience *(high compensation*).

- Speed of recall

The supermarket decided to ask the supplier to examine the complaint and to wait for the results before taking further action (*low speed of product* recall) *or* the supplier, who was informed by the supermarket, decided to withdraw the product from the market and to announce voluntarily through the media a recommendation not to consume the product but to return it to the supermarket (*high speed of product recall*).

- Communication

The parties who were possibly involved, like the supermarket and the supplier, tried to keep the incident private and provided hardly any information to the press (*no communication*) or the parties who were possibly involved, like the supermarket and the supplier, showed great openness to all who asked for information *(high communication).*

This combination of incident and response read like this:

Incident
A consumer buys a chicken in a supermarket and prepares it at home. After having dinner the consumer becomes ill for a short period due to a food infection. Afterwards it becomes clear that the producer has not complied with the hygiene code for years. As a result, a bacterial infection developed.

Response[2]
After having recovered from the illness the consumer returns to the supermarket, as he thinks something was wrong with the product. The supermarket states that a food infection can have many causes and is most often caused by consumers themselves. Therefore, the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, apologizes for what has happened to the consumer and refunds the amount of the purchase. It is not clear if something was wrong with the product. The supermarket decides to ask the producer to examine the product and to wait for his findings before taking further steps. The parties who are possibly involved in the incident, like the supermarket and the producer, try to keep the incident quiet. They give the media hardly any information

Note:
The above-mentioned response was composed of
- Rejecting responsibility ('consumer's own fault')
- Low level of apology (only an apology without further information)
- Low level of compensation (only refunding the amount of the purchase)
- Low speed of product recall (postponing further activities like a product recall till more is known about the investigation of the product by the producer)
- Low level of communication (trying to keep incident quiet)

Pilot testing

We continued our preliminary work by pilot testing the vignettes. In order to control whether the formulated responses were understood and whether the different levels were distinct, a separate survey was held (Graat 2003). One hundred and seventy-six undergraduate students from Tilburg University participated in this survey. Some improvements were made based on the results. Finally, a pilot test was held with seventy-four households (see also Chapter 4).

Sampling and sample size

We refer to paragraph 4.3 for a description of the sample and sample size. Each of the 1536 respondents, who in the first part of the experiment judged one of the 12 incidents in one product group, rated in the second part of the experiment one of the 32 hypothetical responses. A total of 24 observations per response were generated (see Table 5.6).

[2] The complete list of 32 responses is included as Appendix 8.

TABLE 5.6

NUMBER OF OBSERVATIONS PER INCIDENT/RESPONSE PER PRODUCT GROUP

	Incident 1	**Incident 2**	**Incident ....**	**Incident 12**	**Total number of observations**
Response 1	2	2	2	2	24
Response 2	2	2	2	2	24
Response ...	2	2	2	2	24
Response 32	2	2	2	2	24
Total number of observations	64	64	64	64	768

Questionnaire

Of the 95 closed questions used in the experiment, fifty-seven questions were related to the second part of the experiment. Twenty-four questions were used to measure the judgment of the response, fifteen questions were used to measure the level of trust (post-trust) as a function of the response, and, finally, eighteen questions were related to behavioral intentions, attitudes, and emotions (see also Figure 5.3)

Scales and constructs[3]

Post-trust in the supermarket, producer and product was measured similar to pre-trust using 5 items; 4 items were adapted from the work of Lau and Lee (1999) and 1 item was suggested by Geyskens (2003). Distributive justice, interactional justice, negative word-of-mouth intention, and repurchase intention were derived from scales developed by Blodgett et al. (1997). Compassion, initiative, and openness were developed based on the work of Dawar et al. (Dawar 1998; Dawar and Pillutla 2000; Klein and Dawar 2004), who showed that these dimensions are important elements in a company response.

Procedure

Immediately after the respondents rated the incident, a short vignette of the response was offered and judged (see Figure 5.3).

[3] Detailed information on the constructs and operationalization is attached in Appendix 6.

FIGURE 5.3

SEQUENCE OF STEPS IN THE EXPERIMENT

PART ONE OF THE EXPERIMENT

Reading a vignette of one food safety incident

- (1) Answering 15 closed questions to establish the level of trust (pre-trust) in supply chain members and the product involved.
- (2) Answering 12 closed questions to measure attribution (locus, controllability, and stability).

PART TWO OF THE EXPERIMENT

Reading a vignette of the response. Respondents were requested to imagine the response was the reaction of the supply chain members to the food safety incident.

- (3) Answering 24 closed questions to establish the judgment of the respondents of the different dimensions of the response.
- (4) Answering 15 closed questions (equal to the questions stated under 1) to measure the level of trust (post-trust) as a function of the response given.
- (5) The final set of 18 questions was related to behavioral intentions, attitude, and emotions[4]

Respondents were requested to imagine the consumer, who became sick after having eaten the product, returned to the supermarket to complain, and received a response. The dimensions (dependent variables) on which the responses of the channel members, voiced by the supermarket, were judged were the following: *compassion* (to what extent the supermarket showed concern for consumers' welfare), *interactional justice* (to what extent the supermarket treated the consumer with respect and handled the incident with care), *distributive justice* (the assessment of the fairness of the compensation offered), *initiative* (the perceived level of alertness and thoroughness in dealing with the incident), and *openness* (the rated accessibility to information).

[4] Beyond the scope of this dissertation.

5.4 Results

Profile of the sample

We refer to paragraph 4.4 for a description of the sample

Reliability

Factor analysis, using Varimax orthogonal rotation, was done to determine the reliability of the pre-trust and post trust constructs (we refer to paragraph 4.4 for a description of the results). A reliability test was done also on the constructs of distributive justice, interactional justice, openness, initiative, and compassion. The explained variances ranged from 54% (initiative) to 86% (distributive justice). Cronbachs's coefficient of the constructs used was between 0.87 and 0.94 (see Table 5.7).

TABLE 5.7

CRONBACH'S COEFFICIENT

Construct	Chicken	Ready-to-eat meals
Post-trust		
• Post-trust supermarket	0.91	0.91
• Post-trust producer	0.92	0.89
• Post-trust product	0.95	0.94
Compassion	0.87	0.86
Distributive justice	0.87	0.88
Interactional justice	0.91	0.92
Openness	0.90	0.88
Initiative	0.77	0.79
Negative word-of-mouth intention		
• About the supermarket	0.87	0.86
• About the producer	0.91	0.90

Manipulation check

In order to assess the convergent validity of the levels within each dimension, a manipulation check was performed, in addition to the manipulation tests done as part of the preliminary research. Convergent validity was assumed if there was a significant difference between each level of the manipulated dimension. Five different ANOVAs were performed with openness, distributive justice, interactional justice, initiative, and responsibility as dependent variables. The independent variables were the manipulated levels of the response attributes

(responsibility, compensation, apology, speed of recalling products, and level of communication). The results revealed (see Table 5.8) in all cases that the manipulated levels within each of the dimensions were perceived significantly differently ($p<.001$) and were perceived as expected: the low level of communication, which means showing no openness, was rated significantly lower ($M_{\text{communication low}}=3.9$) than the high level of communication ($M_{\text{communication high}}=5.0$; $F_{(1,1530)}=333.671$). The same applied to the low level of compensation ($M_{\text{compensation low}}=4.7$) versus the high level of compensation ($M_{\text{compensation high}}=5.3$; $F_{(1,1530)}=62.609$); the low level of apology ($M_{\text{apology low}}=4.9$) versus the high level of apology ($M_{\text{apology high}}=5.2$; $F_{(1,1530)}=16.501$); the low speed of deciding on a product recall ($M_{\text{speed low}}=4.5$) versus a high-speed decision ($M_{\text{speed high}}=4.8$; $F_{(1,1530)}=18.818$), and a low level of responsibility ($M_{\text{responsibility low}}=4.8$) versus a high level of expressed accountability ($M_{\text{responsibility high}}=5.6$; $F_{(1,1530)}=118.201$). We conclude that the respondents perceived the differences between the manipulated levels of the channel response and as such met the convergent validity of the manipulation.

TABLE 5.8

MANIPULATION AND CONFOUNDING CHECKS

Independent variable	Type of check	Low	High	F	P
Communication	**Manipulation**	**3.9**	**5.0**	333.671	**.000**
Compensation	Confounding	4.4	4.5	3.986	.046
Apology	Confounding	4.4	4.6	11.138	.001
Speed of product recall	Confounding	4.4	4.5	1.827	.177
Responsibility	Confounding	4.3	4.6	13.581	.000
Communication	Confounding	4.8	5.1	19.313	.000
Compensation	**Manipulation**	**4.7**	**5.3**	62.609	**.000**
Apology	Confounding	4.9	5.1	8.409	.004
Speed of product recall	Confounding	5.0	5.0	.051	.822
Responsibility	Confounding	4.8	5.1	15.123	.000
Communication	Confounding	4.8	5.3	41.992	.000
Compensation	Confounding	4.9	5.3	35.669	.000
Apology	**Manipulation**	**4.9**	**5.2**	16.501	**.000**
Speed of product recall	Confounding	5.0	5.1	2.703	.100
Responsibility	Confounding	4.7	5.4	110.378	.000
Communication	Confounding	4.4	4.9	42.259	.000
Compensation	Confounding	4.6	4.7	2.604	.107
Apology	Confounding	4.5	4.7	9.750	.002
Speed of product recall	**Manipulation**	**4.5**	**4.8**	18.818	**.000**
Responsibility	Confounding	4.4	4.9	62.818	.000
Communication	Confounding	4.9	5.5	66.359	.000
Compensation	Confounding	5.1	5.3	15.085	.000
Apology	Confounding	5.1	5.3	8.497	.004
Speed of product recall	Confounding	5.2	5.2	.068	.795
Responsibility	**Manipulation**	**4.8**	**5.6**	118.201	**.000**

Pre-trust versus post -trust

Comparison of the pre-trust level and the post-trust level showed that the effects of the responses to the food safety events were generally positive, but limited (Table 5.9).

TABLE 5.9

RATINGS OF PRE-TRUST AND POST-TRUST IN SUPERMARKET, PRODUCER, AND PRODUCT

Ratings:
1= low level of trust
7= high level of trust

	Total	**Chicken**	**Ready-to eat- meals**
N=	1536	768	768
Supermarket:			
• Pre-trust	5.1[a]	5.0[a]	5.1[a]
• Post-trust	5.4[a]	5.3[a]	5.4[a]
Producer:			
• Pre-trust	5.1[b]	5.0[b]	5.2
• Post-trust	5.2[b]	5.1[b]	5.3
Product:			
• Pre-trust	5.1[a]	5.0	5.0[a]
• Post-trust	5.2[a]	5.1	5.3[a]

[a] = means indicated with the same letter are significantly different from one another at $p < .001$
[b] = means indicated with the same letter are significantly different from one another at $p < .01$

The relatively limited effect may be a result of any of the following: (a) a relatively high level of pre-trust that still remains after the incident (b) ineffectiveness of the response; (c) a strong influence of the first impression of the incident that established an attitude in the consumer that was difficult to change. We expected that in particular this last reason would explain the limited effects. Distortion of information is a well-known phenomenon described by, among others, Gilovich (1991), Meloy (2000), and Russo et al. (2000). Prior beliefs or impressions might be so strong or deeply rooted that they bias the evaluation of new information or make suppression of these prior beliefs impossible.

Post-trust and product use

In the second step we examined the difference between users and non-users. Whether or not the consumers were users of the product influenced the level of post-trust. Like pre-trust (see Table 4.12), post-trust levels with respect to the product were lower for non-consumers (see Table 5.10). Non-consumers of chicken were also more negative about both the supermarket and producer.

TABLE 5.10

POST-TRUST RATINGS FOR USERS AND NON-USERS

Ratings: 1= low level of trust 7= high level of trust		Chicken		Ready to-eat meals	
		User	**Non-user**	**User**	**Non-user**
	N=	738	30	423	345
Post-trust in supermarket		5.4[b]	4.7[b]	5.4	5.4
Post -trust in producer		5.1[b]	4.5[b]	5.3	5.2
Post -trust in product		5.1[a]	3.7[a]	5.6[a]	5.0[a]

[a] = means indicated with the same letter are significantly different from one another at p<.001
[b] = means indicated with the same letter are significantly different from one another at p<.05

Effects of a difference in complaint handling and crisis management on perceived response

The following step in our analysis was to examine the effects of differences in complaint handling and crisis management (independent variables) on the response dimensions (dependent variables), in order to test the first three hypotheses. These hypotheses concerned the effects of the measures on the perceived response. The ratings on the response dimensions (compassion, interactional justice, openness, distributive justice, and initiative) reflect how consumers experienced or perceived the measures taken by the channel members, in particular the supermarket. The measures concerned communication, compensation, apology, speed of recall, and responsibility.

Hypothesis 6 stated that the service of informing the consumer about the cause of an incident, in addition to offering an apology, would have a more positive effect on perceived interactional justice than simply offering an apology. We found strong support for this hypothesis. The effect of the more extensive apology on the perceived interactional justice was highly significant (b=.356; t_{1002}= 4.057, p<.001). There was also a significant (p<.01) positive side effect on the perception of all other response dimensions (see Table 5.11). This implies that it is beneficial for supply chain partners to invest in follow-up activities for consumers after a food safety incident. From Table 5.11 it can also be concluded that the manipulated level of a response attribute or measure generally showed a positive main effect for the higher level of each attribute or measure.

Hypothesis 7 stated that an immediate product recall in case of a food safety incident caused by producer or supermarket would have a more positive effect on consumers' perception of the initiative taken relative to a product recall that is initiated after a

preliminary inquiry. We found strong support for this hypothesis. Immediate recall in case of an externally caused food safety incident had a strong and positive effect on the perceived initiative (b=.458; t_{1002}= 6.106, p<.001). An immediate recall also contributed to a better judgment of the perceived openness (b=.192; t_{1002}= 2.682, p<.01) as the product recall was combined with an announcement not to consume the product but to return it to the supermarket

We found strong support for Hypothesis 8a, which stated that expressing feelings of responsibility would have a positive effect on consumers' perception of compassion, relative to rejecting responsibility. The effect was strong and highly significant (b=1.046; t_{1002}= 12.810, p<.001). Communication about the incident had a similarly strong effect on perceived openness (b=1.236; t_{1002}=17.256, p<.001), as was formulated in Hypothesis 8b. Therefore, admitting to *feeling* responsible for a food safety incident and being *open* to the public works positively for supply chain members. This effect was so strong and general that it created a kind of halo effect [5] on all other dimensions. However, we did not find support for a positive interaction effect of expressing responsibility and being open in communication in the event of an externally caused incident, as posed in Hypothesis 8c. On the contrary, the interaction of open communication and expressing a feeling of responsibility showed negative signs on all perceived dimensions; only some of them were significant, like the effect of the interaction of communication and responsibility on interactional justice (b=-.418; t_{1002}=-2.381, p<.05) and distributive justice (b=-.617; t_{1002}=-3.205, p<.01). This means that, contrary to our expectations, the interaction of communication and responsibility does not generate synergy, but simply a contra-productive effect. The same applied to the interaction effect of compensation and apology on distributive justice (b=-.396; t_{1002}=-2.056, p<.05) and initiative (b=-.316; t_{1002}=-2.105, p<.05). We assumed in some cases that the response would be perceived by consumers as exaggerated relative to the seriousness of the incident. In some cases, however, the interaction had a positive effect, like the interaction between speed of recall and responsibility on perceived compassion (b=.492; t_{1002}=3.014, p<.01), on interactional justice (b=.473; t_{1002}=2.692, p<.01), and on openness (b=.422; t_{1002}=2.946, p<.01). To recall a product immediately and to express feeling responsible seems to be a logical and strong combination. Also interesting was the consistent interaction effect of responsibility and the product group involved. Food safety incidents with ready-to-eat meals are less common than incidents with chicken. Therefore, consumers seem to appreciate

[5] A halo effect occurs when consumers assume that because one aspect is good or bad, other aspects will also be good or bad.

the expression of a feeling of responsibility by the supermarket more than in the case of incidents with chicken.

TABLE 5.11

EFFECTS OF DIFFERENT LEVELS OF RESPONSE ATTRIBUTES ON RESPONSE DIMENSIONS (EXTERNAL LOCUS)

N=1024	Unstandardized coefficients				
	Compassion	**Interactional justice**	**Openness**	**Distributive justice**	**Initiative**
Main effects					
Communication (0,1) [1]	.625***	.502***	1.236***	.499***	.469***
Compensation (0,1) [1]	.311***	.537***	.145*	.742***	.139
Apology (0,1) [1]	.246**	.356***	.200**	.263**	.246**
Speed of recall (0,1) [1]	.100	.166	.192**	.180	.458***
Responsibility (0,1) [1]	1.046***	1.049***	.380***	.568***	.682***
Product group (0,1) [2]	-.073	-.092	-.098	-.197*	-.088
Interaction effects					
Communication. x compensation	.069	-.051	-.105	-.232	.108
Communication x apology	-.077	.046	-.112	.003	.144
Communication x speed of recall	.041	.004	.107	-.133	-.189
Communication x responsibility	-.211	-.418*	-.168	-.617**	-.031
Communication x product group	-.169	-.116	-.172	-.104	-.144
Compensation x apology	-.227	-.322	-.232	-.396*	-.316*
Compensation x speed of recall	.113	.241	.229	.115	.148
Compensation x responsibility	-.302	-.056	-.090	.042	-.284
Compensation x product group	-.016	.241	-.016	.159	.128
Apology x speed of recall	.027	-.100	.111	-.281	-.119
Apology x responsibility	.041	-.064	.026	.021	-.002
Apology x product group	-.127	-.022	.150	-.237	.058
Speed of recall x responsibility	.492**	.473**	.422**	.276	.166
Speed of recall x product group	.003	.014	.046	.076	.069
Responsibility x product group	.417*	.374*	.146	.435*	.367*
Overall intercept	4.976	4.771	4.263	4.850	4.431
Adjusted R Squared	.198	.189	.254	.123	.147
F-statistic	13.041	12.368	17.550	7.854	9.364
D.F.	21,1002	21,1002	21,1002	21,1002	21,1002
p-Value	.000	.000	.000	.000	.000

* <.05; ** p < .01; p < .001
[1] = base line is low level (0)
[2] = baseline is chicken (0)
(mean centered)

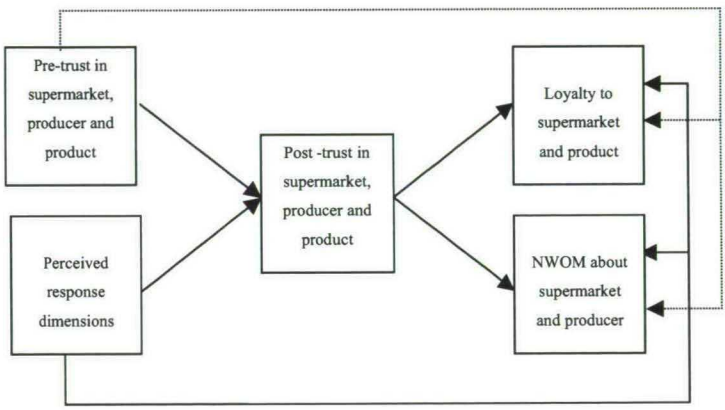
The effects of perceived response and pre-trust on post-trust

We continued our analyses by constructing a path model in Amos to test our other hypotheses. Other approaches would also have been possible; however, a path model offered

us the opportunity to integrate all expected relationships. Macrolevel analysis of the overall model (see Figure 5.4) for internal caused incidents were first examined. The chi-square value of 136.692 with 15 *df* was found to be statistically significant at $p<.001$. However, owing to the complexity of the model the fit was only moderate. Its fit statistics were as follows: normed $-\chi^2 = 9.11$; normed fit index (NFI) = .98; relative fit index (RFI) = .83; Bentler's Comparative Fit Index (CFI) = .98; and root mean square error of approximation (RMSEA) = .13 Arbuckle (1995) recommends use of a model with a RMSEA not larger than .10; our model was just above this limit. Hu and Bentler (1999) recommend higher limits, like a CFI index close to .95 and RMSEA close to .06. They admit, however, that it is difficult to designate a specific cutoff value for each fit index owing to the various conditions.

FIGURE 5.4

SIMPLIFIED PATH MODEL



Note: covariates are not represented in the figure but were included in the model

Hypothesis 9 (a and b) concerned food safety incidents induced by consumers themselves. We expected a positive effect of consumers' perceptions of interactional justice on post-trust (9a), but no effect of distributive justice (9b) on post-trust. We found support for both hypotheses. A better perception (higher rating) of interactional justice has a highly significant ($p<.001$) positive effect on post-trust in the supermarket (path coefficient = .255), post-trust in the producer (path coefficient = .207), and also post-trust in the product (path coefficient = .137). But, as predicted, distributive justice had no effect on post-trust (see Table 5.12). This implies that consumers want to be treated fairly if they complain to the supermarket, even if they caused the incident themselves, but do not expect a redress, probably realizing that they

do not deserve compensation in such cases. The results also reflected the strong effect of openness on post-trust in both actors, suggesting a generic effect: consumers *always* want supply chain members to be open about an incident.

TABLE 5.12

EFFECTS OF PRE-TRUST AND PERCEIVED RESPONSE ON POST-TRUST (INTERNAL INCIDENTS)

		Unstandardized coefficients	
N=526		**Post-trust in :**	
	supermarket	**producer**	**product**
Pre-trust supermarket	.138***	-.024	.023
Pre-trust producer	.156***	.390***	-.007
Pre-trust product	.097***	.203***	.759***
Compassion	.070	.040	-.009
Initiative	.063	.039	.032
Distributive justice	.039	.006	-.017
Interactional justice	.255***	.207***	.137***
Openness	.148***	.124***	.030
R Squared	.55	.58	.67

* $p<.05$ **; $p<.01$; ***$p<.001$

Hypotheses 10 and 11 concerned externally caused incidents. To be able to test our hypotheses we developed a similar model as before, but limited to those external incidents. The chi-square value of this model was 180.341 with 15 *df* and found to be statistically significant at $p<.001$. Also in this case the fit of the model was only moderate. Its fit statistics were as follows: normed $-\chi^2 = 12.02$; normed fit index (NFI) = .98; relative fit index (RFI) = .88; Bentler's Comparative Fit Index (CFI) = .98; and root mean square error of approximation (RMSEA) = .10.

TABLE 5.13

EFFECTS OF PRE-TRUST AND PERCEIVED RESPONSE ON POST-TRUST (EXTERNAL INCIDENTS)

N=1024	Unstandardized coefficients Post-trust in :		
	supermarket	**producer**	**product**
Pre-trust supermarket	.329***	-.076***	-.017
Pre-trust producer	.011	.553***	.024
Pre-trust product	.065**	.166***	.747***
Compassion	.233****	-.005	-.019
Initiative	.088**	.066	.081**
Distributive justice	.105***	.024	.066**
Interactional justice	.113***	.049	-.043
Openness	.178***	.176***	.070**
R Squared	.69	.56	.66

* $p<.05$ **; $p<.01$; ***$p<.001$

In hypothesis 10 we stated a better judgment of the consumer of the initiative that is taken in response to an external food safety incident is beneficial for both the supermarket and the producer. We did not found general support for this hypothesis. The results showed (see Table 5.13) that in such case the (small) credits *only* goes to the supermarket (path coefficient =.088, p<.01); hypothesis 10a was therefore supported. A better judgment of the initiative is also beneficial for post-trust in the product (path coefficient =.081, p<.01); it probably helps to restore trust. The results suggest consumer perceive the supermarket takes the lead in case of a food safety incident, and not the producer, in particular when it concerns taking corrective measures. We therefore found no support for hypothesis 10b.

The results also showed (Table 5.13) that post-trust in supermarket, producer, and product is strongly influenced by the level of pre-trust that remains after an incident. For instance, if *pre-trust* in the supermarket was higher, *post-trust* in the supermarket was also higher (path coefficient =.329, $p<.001$). This influence of pre-trust on post-trust was even stronger for post-trust in the producer (path coefficient =.553, $p<.001$) and post-trust in the product (path coefficient =.747, $p<.001$). Thus, higher levels of pre-trust in the supermarket, producer, and product positively influence post-trust in supermarket, producer, and product; lower levels of pre-trust create lower levels of post-trust. As we concluded above that pre-trust is strongly influenced by the dimensions of an incident, this implies that the incident itself determines to a large extent post-trust, in particular post-trust in the producer and the product. The relatively smaller effect of pre-trust on post-trust with respect to the

supermarket is explained by the impact of the perceived response: it is the supermarket which initially articulates the response to the consumer about an incident. Therefore, consumers' judgment of the response has the strongest effects on post-trust in the supermarket. Or, put differently: the less involved an actor is in responding to an incident, the less that actor's effect on trust.

It can also be seen from Table 5.13 that showing compassion for a consumer who experienced a food safety incident had the strongest effect on post-trust in the supermarket (path coefficient =.233, $p<.001$). This implies that it is beneficial for post-trust in the supermarket not to create an emotional distance from the consumer, for instance, if the supermarket fears being held formally responsible. A more positive judgment of interactional justice (by treating the consumer with respect and examining the incident carefully) also worked positively (path coefficient =.113, $p<.001$). The same holds for the effect of distributive justice: the stronger the impression that the consumer received fair compensation, the more positive the post-trust in the supermarket (path coefficient =.105, $p<.001$).

Post-trust in the producer was primarily affected by pre-trust in the producer, but also by pre-trust in the product (path coefficient =.166, $p<.001$). A small but highly significant negative effect was observed for the path of pre-trust in the supermarket to post-trust in the producer (path coefficient =-.076, $p<.001$). We expect that this effect is created by a kind of trade-off model implicitly used by the consumer: if the supermarket did not cause the incident, then the producer must have caused it.

In short, pre-trust in the producer and pre-trust in the product strongly determine post-trust in the producer and post-trust in the product; post-trust in the supermarket, however, is to a large extent determined by consumers' perceptions of the response.

The effects of pre-trust, perceived response and post-trust on behavioral intentions

Hypothesis 11 concerned the effects of pre-trust and post-trust on loyalty and negative-word-of-mouth activities. We found general support for the hypothesis and the related specific hypotheses (Hypotheses 11a, b, c, and d) but mixed results for Hypothesis 11e (mediation).

We report first our findings regarding loyalty to the supermarket (Hypothesis 11a) and NWOM intentions regarding the supermarket (Hypothesis 11 b). Pre-trust in the supermarket had a significant ($p<.01$) and direct effect on loyalty to the supermarket (path coefficient =.210, $p<.01$), as well as an indirect effect (path coefficient =.185, $p<.01$) via post-trust (see Table 5.14 and Figure 5.5). We also found an indirect effect for the influence of pre-trust in the product on loyalty (path coefficient =.214, $p<.01$). However, the strongest effect ($p<.01$)

on loyalty was found for post-trust in the supermarket (path coefficient =.591) as a direct effect. Post-trust in the product also contributed to loyalty (path coefficient =.217). In line with Hypothesis 11e, we found that the effect of the perceived response was indirect, mediated by post-trust. No direct effect of the perceived response on loyalty was found. In other words, consumer's intention to continue buying the product in the supermarket involved in the incident is driven primarily by the level of pre-trust and post-trust in the supermarket and the product; the via post-trust-mediated effects of the perceived response, are secondary. With respect to intention to complain to family and relatives about the supermarket, we observed similar relationships between trust and behavioral intention, but, as predicted, with reversed effects: higher levels of pre-trust and post-trust resulted in lower intention to complain. A lower level of intention to complain was driven strongly by post-trust in the supermarket (path coefficient = -.479, $p< .01$). Compared to the influence on loyalty, the effect of post-trust in the product was less important, but the consumer's perception of the initiative taken now had a direct and significant negative effect (path coefficient = -.144, $p< .01$) on the intention to complain. We conclude the following: like loyalty to the supermarket, the intention to complain is also driven by the level of trust, either directly or indirectly via post-trust; in addition to the effect of the perceived response mediated by post-trust, also the direct effect of the consumer's perception of the initiative influences the intention to complain. How consumers perceive the initiative (thoroughness of the measures, ignoring self-interests) seems, therefore, to be an important element in the response. The findings imply support for Hypotheses 11a and c, and partial support for Hypothesis 11e.

TABLE 5.14

DIRECT AND INDIRECT EFFECTS OF PRE-TRUST, PERCEIVED RESPONSE AND POST-TRUST ON BEHAVIORAL INTENTIONS TO SUPERMARKET (EXTERNAL INCIDENTS)

	Unstandardized coefficients					
	Loyalty [1] to supermarket			NWOM[2] about supermarket		
	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect
Pre-trust supermarket	.210**	.185**	.395**	-.194**	-.157**	-.352**
Pre-trust producer	-.044	.056	.012	-.023	-.020	.043
Pre-trust product	.119	.214**	.333**	-.131*	.044	-.087*
Post-trust supermarket	.591**	---	.591**	-.479**	---	-.479**
Post-trust producer	.080	---	.080	-.031	---	-.031
Post-trust product	.217**	---	.217**	.107*	---	.107*
Compassion	-.127	.133**	.006	-.088	-.113**	-.201**
Initiative	.042	.075**	.117*	-.144**	-.036*	-.179**
Distributive justice	.040	.078**	.118*	-.073	-.044**	-.117**
Interactional justice	.104	.061*	.166*	.085	-.060**	.025
Openness	.022	.134**	.156**	-.017	-.083**	-.100*
R Squared	.40			.39		

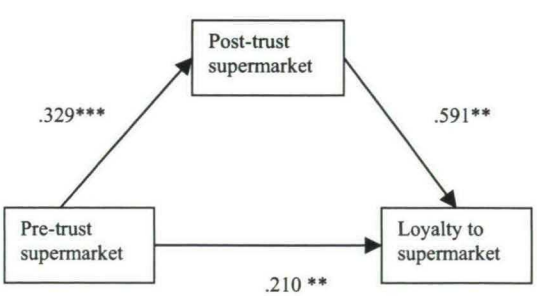
[1] = to maintain buying the product in this supermarket

[2] = Negative Word of Mouth activities

* $p<.05$ **; $p<.01$; ***$p<.001$

FIGURE 5.5

DIRECT AND INDIRECT EFFECTS OF PRE-TRUST AND POST-TRUST ON LOYALITY TO THE SUPERMARKT (PATH COEFFICIENTS)



Note:
$p<.05$ **; $p<.01$; ***$p<.001$

Total effect is: .210 + .185 = 39.5

We examined the effects on consumers' intentions to remain loyal to the product and to complain about the producer in a similar way. We found support for Hypotheses 11b and 11 d, about the positive effects of pre-trust and post-trust on loyalty, and we found support also for the negative effect of NWOM (see Table 5.15). The results show that loyalty to the product is driven by the direct and indirect effects of pre-trust in the product (path coefficient = .637, $p< .01$) and post-trust in the product (path coefficient = .288, $p< .01$), in addition to the indirect effects of distributive justice mediated via post-trust. Compensating a consumer, therefore, contributes to loyalty to the product, but the effect is marginal The intention to complain was strongly influenced by the direct and indirect effects of pre-trust in the producer, but most strongly by the level of post-trust in the producer (path coefficient = -.645, $p< .001$). Interestingly, higher level of pre-trust in the supermarket and post-trust in the supermarket were found to have a stimulating effect on the intention to complain about the producer; as stated above, we assume that consumers intuitively make a tradeoff between supermarket and producer. In general, however, the stronger the level of post-trust, the lower the intention to complain to others. Like the intention to complain about the supermarket, consumers' perceptions of the initiative taken had a direct effect on the intention to complain (path coefficient = -.164, $p< .01$).

TABLE 5.15

DIRECT AND INDIRECT EFFECTS OF PRE-TRUST, PERCEIVED RESPONSE AND POST-TRUST ON BEHAVIORAL INTENTIONS TO PRODUCER AND PRODUCT (EXTERNAL INCIDENTS)

	Unstandardized coefficients					
	Loyalty [1] to product			NWOM[2] about producer		
	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect
Pre-trust supermarket	-.021	.045	.025	.008	.099**	.107**
Pre-trust producer	-.060	.032	.028	-.220**	-.355**	-.574**
Pre-trust product	.405**	.233**	.637**	-.064	-.090	-.153**
Post-trust supermarket	.163	---	.163	.151*	---	.151*
Post-trust producer	.041	---	.041	-.645**	---	-.645**
Post-trust product	.288**	---	.288**	.010	---	.010
Compassion	-.044	.032	-.012	.038	.038	.076
Initiative	.052	.040**	.092	-.164**	-.028	-.192**
Distributive justice	.082	.037**	.119*	-.039	.001	-.038
Interactional justice	.025	.008	.033	.026	-.015	.011
Openness	-.021	.056**	.035	-.075	-.086**	-.161**
R Squared	.29			.48		

[1] = to maintain buying the product
[2] = Negative Word of Mouth activities
* p<.05 **; p<.01; ***p<.001

5.5 Discussion

In the second part of the experiment we examined the effects of channel responses to food safety incidents. In our incident, a consumer returns to the supermarket after recovering from a temporary illness to complain about the product, as he thinks the product caused the illness. His complaint to the supermarket induces a response from the supply chain members, voiced by the supermarket. The manipulated response as built on attributes and measures derived from complaint handling theories and crisis management, like offering apologies, admitting to feelings of responsibility, recalling products, and communication.

The results show that trust in the supermarket, producer, and product can be restored by using a set of measures, but the effects of the measures are often limited, constrained by the level of pre-trust that remains after the incident. We assume the limitation of the effect, measured as the difference between pre-trust and post-trust, is strongly influenced by what is called distortion of information, the biased evaluation of information about the response to

support a tentative opinion about the supply chain members and the product. This means the incident itself creates a strong impression. Despite the limited effect, choosing the right response is an important matter. The answers to two questions are, therefore, important: who or what is affected by the response, and what makes a response effective?

For the first question, we found that consumers' perceptions of the response to food safety incidents primarily affect post-trust in the supermarket. This is not surprising as the supermarket voiced the response to the consumer and not the producer. Post-trust, in turn, had a strong and positive effect on loyalty to the supermarket: the higher the post-trust, the higher the loyalty. Consumers' intentions to remain loyal were also influenced by the level of trust in the product. The perceived response contributed, in a reversed way, more to the intention to complain about the supermarket: the better consumers' judgment of the perceived response, the lower the intention to complain to others about the supermarket. In particular consumers' perceptions of the initiative taken by the supply members seem to be important. Post-trust in the producer and post-trust in the product are determined primarily by the level of pre-trust that remains after the incident. However, this does not imply that post-trust in the producer and trust in the product are not affected by the response; for instance, the consumer's perception of openness, driven by open communication about the incident, was found to have a strong and homogeneous effect on post-trust in the supermarket *and* the producer *and* the product. Supply chain members should, therefore, always prevent consumers from getting the impression that information is being withheld, and they should ensure that they can be reached easily.

We found mixed results regarding consumers' perceptions of the *initiative* taken with respect to the effect on the producer. The perceived initiative affected the level of post-trust in the supermarket and (but only marginally) post-trust in the product, but *not* the level of post-trust in the producer. However, it had a significant effect on consumers' intentions to complain about the producer, similar to the effect on the intention to complain about the supermarket. This finding suggests that supply chain members should check carefully how consumers perceive their initiative. Monitoring consumers' perceptions during a severe food safety crisis, therefore, seems recommendable.

We also found that trust in the producer did not have an effect on loyalty to the product. We assume, as we did not measure behavioral intention at brand level, that consumers expect there are alternative producers who are able to deliver a similar product.

The second question was, what makes a response effective? We found that consumers do not rate the importance of measures taken by supply chain members in response to a food

safety incident equally. For instance, the influence of communication and expressions of feelings of responsibility on the perceived response was much more important than the effect of the compensation that was offered. To establish the impression that the companies involved are open about the incident and have compassion for consumers who experienced the incident is, therefore, beneficial. In general, we found that more intensive measures in the case of externally caused incidents have a positive effect on consumers' perceptions of the response. In addition to the strong and homogenous effect of perceived openness, expressing feelings of responsibility for what has happened, compensating a consumer with more than only the amount of the purchase, and offering to inform the consumer about what caused the incident were found to have significant and positive effects. However, supply chain members should not overreact. We found no support for expected positive interaction effects between measures; on the contrary, these were found to be counterproductive. An exception was the positive interaction effect between recalling a product and expressing feelings of moral responsibility, which seemed to be perceived as a logical and strong combination.

Finally, consumers seem to have a realistic idea of what is reasonable in the event of a food safety incident. For instance, if the consumers themselves induced the incident, they don't expect to be compensated; the only thing consumers expect in such a case is fair treatment if they complain.

Chapter 6 Conclusions, managerial recommendations, and future research

Food safety is more than 'freedom from Harm'

In this chapter we reflect on the findings of our study, discuss the managerial implications, and propose a future research agenda. We positioned the issue of food safety and food safety incidents in this dissertation in a managerial context as well as in an academic perspective. Our primary academic objective was to contribute to the understanding of consumer behavior with respect to food safety, within the framework of supply chain relations. We aimed to deepen our understanding of the effects of food safety incidents *if different actors are involved.* Up till now in attribution studies of product or service failures the locus was limited to one actor, mainly denoted as 'the supplier'. The development towards more network types of organizations (Verhallen et al. 2004), stronger supply chain relations, and shared responsibility for food safety ' from farm to fork' urges scholars to examine possible effects in order to decide if existing theories need to be redefined or extended. The results of these academic findings, in turn, may make firms aware of the necessity to adapt policies. We executed five studies in total. Table 6.1 provides an overview of the studies, their main characteristics, and the chapters in which they are reported.

TABLE 6.1

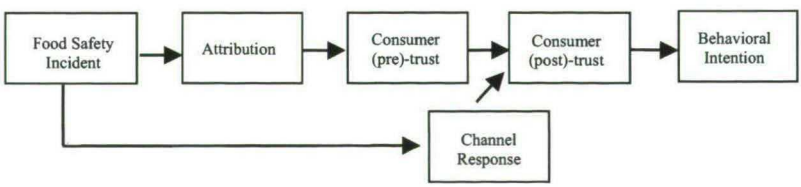
MAIN CHARACTERISTICS OF THE STUDIES

	Study 1	Study 2	Study 3	Study 4	Study 5 Part one	Study 5 Part two
Subject	Number of food safety incidents	Views, experiences with food safety incidents	Views, experiences with food safety incidents	Views, experiences with food safety incidents	Effects of food safety incidents on (pre-) trust	Effects of food safety incidents on (pre-) trust
Methodology	Critical Incident	Focus groups	Personal interviews	Personal interviews	Experiment	Experiment
Sample	Households	Housewives	Experts	Supply chain members	Households	Households
Sample size	660	24	8	12	1536	1536
Data analysis	Content/ compare means	Content analysis	Content analysis	Cross-case comparison	Multiple regression	Multiple regression; path analysis
Chapter	1	2	2	3	4	5

We reflect on the findings of the studies below, following the model of the attribution process introduced in Chapter 1 (see Figure 6.1).

FIGURE 6.1

THE ATTRIBUTION PROCESS



6.1 Conclusions

Food safety incidents

The findings presented in Chapter 1 and Chapter 2 show that food safety incidents are a serious matter, both on the level of the individual consumer and on an aggregated level. Individual consumers *always* perceive a food safety incident as serious, even if they caused it themselves, for example, by ignoring cooking instructions. They judge food safety incidents to be serious because of their consequences, like feeling unpleasant, spoiled holidays, or even a longer period of illness. Only the level of seriousness consumers attach to food safety incident varies. Food poisoning as a result of eating out- of-home, for instance, is found to be more serious than finding a foreign object in a product, but *all* are perceived as serious. Those who are involved in handling consumer complaints, for instance, at the service desk of a supermarket or producer, should realize this when a consumer complains. These employees should also realize that a food safety incident is an emotional experience; this implies they should show compassion and not present consumers initially with rational arguments.

The number of food safety incidents reported in our study which were induced in consumers' homes was found to be low. Experts pose, however, based on studies of microbiological contamination in kitchens, that the majority of food safety incidents are created at consumers' homes. The question then is, why is the number of incidents reported so low? Do people make a wrong diagnosis if they feel unwell after eating a meal at home? Do they externalize the cause? Are they ashamed to admit they caused an incident, for instance, by ignoring 'best-before' dates? More research into this phenomenon is recommended as provision of specific communication about precautionary measures consumers can take could help to reduce the number of incidents.

We found that under normal and stable conditions consumers do not pay much attention to food safety, and that they take it for granted as they perceive food products in general as safe to eat. Thus, the high level of technical safety created by the industry, retailers as well as the government, has created its own weakness, namely, indifference. This indifference creates additional food safety risks for elderly people. Elderly people, in particular those with a weak physical condition, may experience more serious consequences in the event of a food safety incident and should, therefore, pay more attention to food safety. They should avoid using certain food products (e.g., free-range eggs) and pay extra attention

to the preparation of food. Food producers should also pay more attention in the future to the labeling of products and choice of ingredients.

Consumers were found to have a rather simple view of who is responsible for food safety. They have a normative view of the function of each individual actor (for example, a producer should produce safe products and operate in an ecologically sound way); at the same time, they simply expect that all actors together should contribute to safety from 'farm to fork'. In the event of a food safety incident they want to know what caused the incident, but they are not interested in finding out who is *formally* responsible. Consumers' perceptions of responsibility might differ from a juristic perception of blame and responsibility.

Attribution

The concept of attribution was found to be a useful concept in examining how people arrive at conclusions about what causes food safety incidents and what the consequences of these incidents are. Food safety incidents were found, as we reported in Chapter 4, not to have similar effects on trust in different external actors, despite similarity of technical causes. Nor were the effects the same on actor and product. The effect was often found to be much stronger on trust in the actors than on trust in the product. In our opinion, these findings are novel in attribution theory. In the context of food safety incidents induced in the supply chain, the position and function of the actors seems to influence the outcome.

From a methodological perspective, extension of the external locus from one - as is mostly done in attribution research into product failure – to two is a useful approach for measuring multi-actor effects. We found that more responsibility is attributed to a food retailer (supermarket), even if the producer caused the incident, than to the producer when the supermarket caused the incident. We call this the 'gatekeeper effect'; responsibility is attributed based on the position in the supply chain, where food retailers are the last actors able to prevent unsafe products from coming to the market.

In a contribution by Barendrecht (2004) about the legal aspects of responsibility, we found a strong parallel with our proposed multi-actor approach. The author first sketched the differences in the approaches to responsibility of lawyers and psychologists. In the legal approach, a distinction is drawn between causality (the causal relation between act and effect), responsibility (for instance, based on assessment of risk-sharing), culpability (based on reprehensibility), and intention. In the psychological approach, the levels of responsibility perceived by people range from 'controllability' through 'responsibility' to 'blame' and

'intention'. Barendrecht (2004) argues, however, that these rankings often have a false appearance; the levels are difficult to distinguish, are largely made intuitively, are emotionally loaded, and are influenced by motivational and cognitive distortion. The complexity of the assessment of responsibility and causes as well as the sometimes ambiguous situations are, according to Barendrecht (2004), reasons for judges to concentrate often on only one aspect of a legal case and not to materialize shared responsibility in deciding compensation. It is an 'all or nothing' approach; one or more parties are blamed, and in between solutions in which responsibility is shared are used less frequently. Building on 'culpable control' to systemically review the causes of a case, Barendrecht proposes the assessment of the controllability for all parties of the causes as well as the level of controllability, the weighting of the contributions of all parties, and the translation of the outcome into a share of contribution to the incident. This approach is proposed as a better and more satisfying solution for legal cases, as these seem to be growing in complexity, owing, for instance, to the chain of processes that makes responsibility less clear. Barendrecht recommends, in other words, that judges assess the level of controllability of each actor and take that into consideration when passing judgment. We propose a similar approach for attribution research within the context of studies involving multi-actors, like in dense supply chain relations or network structures.

In the experiment described in Chapter 4 and Chapter 5, we limited investigation to two external actors; this does not reflect, however, the complex reality, where significantly more actors are involved, for instance, farmers at the start of the supply chain, and even suppliers of cattle feed. This raises some interesting questions regarding the attribution of responsibility, blame, and guilt higher in the supply chain. The results of our study show that consumers attribute more responsibility to the supermarket than to the producer, based on its position in the supply chain, but does that also hold for attribution of responsibility by the producer to his supplier or even to the farmer? Before 2000, legislation concerning product liability did not include unprocessed agricultural products, and farmers could generally not be held responsible. However, extension of this legislation and the introduction of the General Food Law on January 1, 2005 have changed this radically. Recently,[1] a number of companies in the diary and meat processing industries announced that from January 2007 they would hold cattle farmers liable for the financial damage of food safety incidents. Up till now the food-processing industry was forced to bear the costs. The companies advise the farmers to

[1] *Boer draait op voor voedselschandaal*, BN/de Stem, October 14, 2006.

make legal contracts with their cattle feed suppliers to move responsibility as much as possible to this actor. An interesting question, however, is if, in the event of a new crisis or scandal, public opinion would follow this movement of responsibility.

Pre-trust

Our results regarding the effects of food safety incidents on trust showed interesting and novel findings, in particular with respect to interaction effects. Stable incidents caused by either the food retailer or the producer were found to affect *only* trust in those actors who caused the incident. In the event of controllable incidents, trust in *both* actors was affected, as well as trust in the product. We found this in both product groups. What caused this difference? Folkes and her colleagues (Folkes 1990; Folkes 1984; Folkes 1988; Folkes, Koletsky, and Graham 1987) found that perceived controllability of a cause determines to a large extent the emotional response of consumers; controllability is also perceived as the most important dimension in legal cases. Perceived stability of a cause, on the other hand, influenced the type of redress preferred by consumers. We therefore expect that stability leads to a more rational judgment by consumers than does controllability. Consumers may, in the case of stable incidents, consider only the chances of repetition of the incident, whereas incidents related to controllability cause them to question the behavior of the actors, making predictions about future food safety more difficult. As a consequence of this perceived uncertainty, consumers' distrust might extend to all involved, as well as the product. This finding is important for the *content* of communication (written, oral, personal, or through the media) about food safety incidents, as our findings suggest that emphasizing the technical factor that caused an incident is less detrimental than emphasizing the human factor. Supply chain members should also be aware that consumers take the view, to a greater extent than expected, that suppliers can prevent incidents. Even if the incident was technically inevitable, consumers may initially think the opposite. Our findings do not imply that a rational *approach* to consumers should be chosen; the outcome of our experiment merely suggests that showing compassion with those who experience a food safety incident contributes to repairing trust. Our findings also invite initiation of further research into what underlies the differences in effect between stability and controllability. It would also be useful to examine whether, based on our reasoning, a food incident that is caused by an external, technical reason is more easily accepted by consumers than a food safety incident that is caused by behavior of the external actor.

Controllability was found to have the reversed effect where controllable incidents caused by the consumer were concerned; in this case, consumers have relatively more trust in the product when they have control than when events are controllable by either the supermarket or the producer. This finding supports earlier findings of Oliver (1997) and Curren and Folkes (1987), who stated that causality and controllability often appear not to be independent. From a methodological point of view, limiting questions in surveys to either causality or locus of control for manipulations could be considered.

Our results also show that the most severe damage is induced if an incident is stable, controllable, and created by an external actor. Consumers clearly penalized the inferred negative intention of the actor, but trust in the other supply chain member was also affected. People judge intentional and negative actions to be more hard-hearted than neglecting to perform preventive action, as Barendrecht (2004) also concluded. These findings give support to branch associations in their activities aimed at composing 'codes of conduct' for their members.

Channel response

Study 3 covered in-depth interviews with supply chain members in different supply chains. We found that food retailers and producers who have direct or indirect relationships with the ultimate consumers through their brands have different opinions about how to respond to food safety incidents than the large and sophisticated food processors. Both food retailers and producers seemed to realize that a food safety incident is primarily an emotional experience for a consumer. They react on the same level, which means responding to the emotions of the consumer, by listening carefully to his story, showing compassion, providing information, and acting upon the incident in order to maintain trust and loyalty. But food retailers seem to feel that they are in a more 'front office position' relative to the producers, which makes them, in their opinion, also more vulnerable; this may explain why retailers sometimes claim 'conductorship' of the supply chain channel and conflict with their suppliers. The opinion of consumers about responsibility, as illustrated above, supports their opinion. At the same time however, we did not find many differences in the direction and size of the effect of food safety incidents between the two actors. Although more responsibility is attributed to the supermarket as the '*gatekeeper*', in the case of controllable food safety incidents, trust in both is hurt, suggesting a perception of shared blame by consumers. This implies that responsibility is not synonymous with blame or guilt; then we would have found similar

effects. From an academic perspective, examining what causes this difference is challenging; from a managerial point of view, both food retailers and food producers should realize that they *share* the negative effects of certain types of food safety incidents.

Most measures taken in response to a food safety incident were found not to be difficult decisions for a company. Admission of responsibility for an incident, however, is a difficult decision companies have to make, along with deciding how much information should be provided in the case of an incident or crisis. Some companies are simply governed by company rules that forbid any gesture of compassion that could be interpreted as an admission of responsibility. Others find it difficult to find a balance between a generous gesture of compassion and avoiding being held responsible; however, they realize denial of responsibility or blaming others could damage their reputation. Deciding on the amount of information was also found to be difficult. Companies want to avoid being accused of not supplying sufficient information about an incident, but at the same time they want to avoid creating 'panic' by supplying too much information. The results of our experiment show, however, that openness and compassion are the most important dimensions in consumers' assessment of the response. Our results show that companies don't have any choice but to be open and to show compassion if maintaining trust and loyalty is their main objective. It may be argued that showing compassion does not necessarily signify legal responsibility. This is, of course, true, but the line is thin, or may be confusing for the public

Post-trust

The findings of Study 5 show that the effect of the channel response on trust is limited, mainly due to the strong influence of pre-trust that remains after the food safety incident. We assumed also that 'distortion of information' limited the influence. Larger differences between the responses may have created more distinctive effects, too. Further research is needed to unravel this effect.

Consumers' perceptions of the response primarily affect post-trust in the supermarket; post-trust in the producer and post-trust in the product was established mainly by the level of pre-trust. This strong influence particularly on trust in the supermarket is not surprising since the supermarket voiced the response to the consumer. Perceived compassion and openness were found to be important parameters of the effect on trust in the supermarket. Perceived openness also influenced post-trust in the producer and, though to a lesser extent, post-trust in the product. This homogeneous effect of openness implies that both supermarket and

producer should communicate openly about what caused the incident, what the consequences were, and what measures were taken. Producers should facilitate food retailers in providing quick and open answers to those who raise questions. Interestingly, post-trust in the product was not influenced by pre-trust in the producer. We expect, as we did not measure effects at brand level, that consumers would conclude that they can select the same product but from a different supplier. Measuring possible differences in effects between producer-branded, retailer-branded, and unbranded products is, in our opinion, an important direction for further research.

We also assessed the effects of differences in the level of the response attributes or measures. Contrary to our expectations, we did not find a positive interaction effect between admitting responsibility and communication. Several other interaction effects were also found to be either non-significant or to have the opposite effect to that intended. This suggests that actors should not overreact as this may raise questions about the incidents, like whether the incident was really more serious than now presented, or whether the actors are trying to escape critical questions by providing an 'overkill 'of information.

Behavioral intention

The results showed that the intention of consumers to remain loyal to the supermarket, as the place where the product was bought, was affected by pre-trust and post-trust in the supermarket and the product, but in particular by post-trust in the supermarket. The effect of the response was indirect, mediated by post-trust. The intention to complain about the supermarket was influenced equally, but with a reversed effect; however, the effect of perceived compassion on this intention was much stronger. Also, the effect of the perceived initiative was now partially direct and much stronger. Thus, loyalty to the supermarket is primarily a function of trust, whereas intention to complain to others about the supermarket is influenced by the response to the incident. The mechanism that determined loyalty to the product and intention to complain about the producer was generally the same as for the supermarket. The intention to complain about the producer was a function of trust and the effect (partially mediated by post-trust) of perceived initiative and openness. As the perceived initiative had a similar effect on complaining about the supermarket and complaining about the producer, it suggests that it is recommendable for the actors involved to monitor consumers' perceptions closely in the case of substantial incidents.

6.2 Managerial recommendations

This dissertation does not deliver a managerial blueprint that can be used for every food safety incident. As Rosenthal and Pijnenburg state (1991), decision makers should learn from previous incidents and crises, and prepare scenarios. In our opinion, a good example of learning from the past is Nutricia's response in December 2005 to a single complaint received from a consumer about small slivers of glass under the side of the lid of a jar of baby food.[2] Although it was only one complaint, Nutricia voluntarily decided to recall thousands of jars and recommended that consumers not use jars with a certain lot number. Nutricia had paid dearly in 1993 for responding too late and scapegoating others.

Our first recommendation concerns the *present level of perceived safety*.
In general, food products in the Netherlands are perceived as safe to eat, as the results of Study 2 show; supply chain members should, therefore, do their utmost to maintain this positive perception of safety, as it is beneficial for all. In addition to preventing the occurrence of food safety incidents, this implies assuring consumers of the capability of the supply chain members to ensure the safety of food products from 'farm to fork'.

Our second recommendation concerns the *monitoring of complaints*.
Close monitoring of complaints is necessary in order to avoid being taken by surprise. Complaints may indicate serious incidents. Complaints clearly have to be handled in a timely fashion and in a way that satisfies the person who placed the complaint.

Our third recommendation concerns *responding to food safety incidents*.
If a company is confronted with a serious food safety incident, *openness* to the outside world about the incident is the overriding principle for how to react. Our experiment clearly showed the positive effects of this behavior. Informing a consumer personally about what caused an incident and in that way contributing to a positive perception of *interactional justice* is the second important step. An unexpected and massive incident with numerous consumers makes it difficult to give a fully personal reaction, however, database management and word-processing techniques provide customer service departments with several possibilities to handle even large numbers of complaints in a personalized way. Compensating a consumer for a negative experience with a product contributes to better perceived *distributive justice* and works, in an indirect way, positively on loyalty to the product. The findings of Study 5 suggest that expressing feelings of (moral) responsibility results in a direct way in a better

[2] See also the introduction in Chapter 1.

rating of perceived compassion, indirectly in more post-trust, and, finally, in a lower intention to complain to others.

Our fourth recommendation concerns the *presentation of supply chain members in the event of food safety incidents.*

The findings of Study 5 show that consumers, more often than we expected, believe that food safety incidents can be avoided. Even if there was a purely technical reason for the incident, like a power disruption in the supermarket or a technical defect during transport, consumers are of the opinion that the consequences could have been controlled. As other findings suggest, supermarkets and producers are not perceived as entirely trustworthy sources when it comes to the provision of information about food safety; supply chain members should strictly avoid presenting themselves as victims when they communicate about a food safety incident.

Our fifth recommendation concerns the *position of the food retailer as 'gatekeeper'*

The issue of leadership in the supply chain, in particular the question of who (if anyone) is the conductor of food safety, came up frequently in our interviews with supply chain members (Study 3). The presence of strong brands in the market for dry grocery products makes this market segment typically the fortress of A-brand manufacturers, who feel responsible for the safety of their products and oppose the leadership of retailers when it comes to food safety regulations. Fresh produce, which are often unlabeled, need the guarantee of the retailer, and from that perspective the leadership role of retailers is understandable. We found evidence that, despite adherence to the statement that supply chain members share responsibility for food safety 'from farm to fork', in the view of consumers, retailers have an additional responsibility for food safety. Consumers perceive food retailers (supermarkets) as 'gatekeepers', as the last station in the supply chain that can prevent an unsafe product from coming to the market.

Our sixth recommendation concerns *the introduction of food safety objectives.*

Gorris (2005) recently proposed the introduction of food safety objectives as a target for food safety management. Food safety objective (FSO), defined[3] as "the maximum frequency and/or concentration of a hazard in a food at the time of consumption that provides or contributes to the appropriate level of protection" takes as its starting point the moment of consumption. This is contrary to the present method of setting standards, in which the maximum allowed levels in ingredients are formulated. These food safety objectives, defined

[3] Gorris (2005, page 808) used the definition proposed by the Codex Alimentarus Commission.

by the competent authorities, take into account all conditions from intake ('fork') down the supply chain to the origin of the food ('farm'). These objectives can serve as the starting point for the formulation of performance criteria and performance control in the subsequent stages in the supply chain. A good example of this integrated approach is allergen management in the food industry. Allergy is a growing health problem (Savelkoul 2003). Although food-induced allergies seem to remain stable (Savelkoul and Wichers 2006), the number of complaints about food allergies is increasing owing to the more complex food supply chain, where specific ingredients (like soya) are being used in more products. As a result many food-manufacturing companies have recognized the importance of food allergy and their responsibility to food-allergic consumers (Crevel 2006). Allergen management is positioned as part of the food management system, encompassing the activities of all actors in the food supply chain.

6.3 Directions for further research

The results presented in this dissertation provide several insights into the attribution process in the context of food safety incidents and the effects of responses. They also open new directions for further research. First, however, we reflect briefly on the data collection method used. We used different types of research (triangulation) to observe phenomena (food safety and food safety incidents) from different angles and to examine cause and effect relations. We used interviews and focus groups (qualitative research) as well as an experiment (quantitative research). The advantage of qualitative research is the possibility to build understanding of a phenomenon. Its disadvantage is the unavoidable influence of the interpretation of the researcher. The advantages of an experiment are the controlled setting for measuring causality and the large number of alternatives that can be examined. The disadvantage is that actual consumer behavior cannot be examined. Panel-based research or time series analysis is in that respect a valuable addition. The same applies for measuring the impact of a real food safety crisis. However, the unpredictability of when, how, and where makes it a difficult route.

We identified several research topics, as discussed in the previous section. These included the reasons for the low number of incidents caused in consumers' kitchens; the reason for the difference in effect between stable and controllable incidents; differences in

perceptions of blame and responsibility in relation to food safety, and distortion of information as a possible explanation of the relatively small effect of the channel response. We suggest five additional directions for further research:

1. Ambiguous versus unambiguous food safety incidents

We thoroughly examined the manipulations of the food safety incidents. One incident, however, was consistently (both in the preliminary test and the experiment) not perceived as intended. In this scenario, the illness of an elderly consumer was caused by his sensitivity to certain food ingredients. The results showed that multiple parties were blamed: supermarket, producer, and consumer. We decided to keep the scenario as it was since it (a) obviously reflects consistently the opinions of consumers and (b) represents a real and growing societal issue with respect to food safety (allergy, diabetics). As causes of food safety incidents are not always clear-cut, we considered it interesting to examine in more detail the differences in effects between ambiguous and unambiguous incidents.

2. Attribution of food safety scares versus food safety incidents

We examined food safety incidents; events that arise suddenly. However, food safety scares may also affect consumers' trust in the suppliers and the product. Scares may embrace the use of ingredients that are under discussion (like GMO-produced products or ingredients), unawareness of the long-term effects of ingredients, etc.

3. Cross-cultural differences in the attribution of food safety incidents.

We argued that attitudes to food and food habits are strongly rooted in the history of a nation. Food preferences, for instance, show a kaleidoscopic map of differences. At the same time, we observed a process of integration in the extension of the European Union with new member states and the need for authorities to harmonize legislation. In this process of preparation of legislation, several studies are being performed to measure differences and similarities between citizens of different countries. To the best of our knowledge, however, most of these studies have a descriptive character. It is unknown, for instance, whether or not citizens of the 'old' European countries differ from the citizens of the 'new' European countries when it comes to food safety incidents. Differences in the perceived seriousness of food safety incidents might give policymakers reason to create public awareness if certain food safety risks are underestimated.

4. Food safety incidents and emotions

We have argued that food safety is mainly an emotional construct, which is associated with various other constructs. A food safety incident is also an emotional experience. Studies of the specific role of emotions in relation to food safety incidents may help in the composition of even more effective responses.

5. Food safety incidents, responses, and effects on brand equity

We limited our investigation to the level of product categories. However, maintenance of brand equity for either a producer or a food retailer (private label) following a food safety incident is important. Further studies of the effects of food safety incidents and responses to these incidents on equity might deliver valuable insights to optimize companies' reactions.

6.4 Concluding remark

This dissertation dealt with food safety and food safety incidents. We consider these to be large and socially relevant issues, often with personal consequences, not only for consumers, but sometimes also for those who caused the incident. Recently[4] in Germany the authorities confiscated 80 tons of tainted meat. The frozen meat, destined for Asian restaurants and already partially shipped to the Netherlands, had passed its 'best-before date' more than four years previously. The owner of the firm was arrested and committed suicide.

This dissertation also deals with attribution of responsibility and the differences between legal views and psychological views. An interesting question is how the public perceive the message of a company[5] involved in dumping toxic waste in Ivory Coast; the company stated that it felt morally responsible but not legally responsible for what happened. The consequences of the dumping were several deaths and numerous illnesses.

[4] www.agrifholland.nl *Bedorven Duits vlees ook in Nederland geleverd*, accessed 06-09-2006.
[5] www.nos.nl *Trafigura moreel verantwoordelijk* accessed 18-10-2006.

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Nederlandse Samenvatting (Summary in Dutch)

Boeren zijn vanaf 1 januari 2007 aansprakelijk als hun melk of slachtvee is verontreinigd met stoffen die niet zijn toegestaan of stoffen bevatten die een gevaar vormen voor de gezondheid van de consument. Dat meldde op 14 oktober 2006 *de Gelderlander*. Een aantal bedrijven in de voedingsmiddelen industrie heeft besloten niet langer te willen opdraaien voor de schade die voedselincidenten of voedselschandalen aan het begin van de keten veroorzaken. Want in de afgelopen jaren is de voedingsmiddelen industrie geconfronteerd met hoge kosten gemoeid met de afkeuring van melk en vlees door het aantreffen van dioxine en resten van groeihormonen. Boeren werd dan ook geadviseerd om zich tegen mogelijke aansprakelijkheid te verzekeren en daarover contracten af te sluiten met de leveranciers van veevoeder. Dit besluit van bedrijven in de voedingsmiddelenindustrie is ook een logisch vervolg op de uitbreiding naar de agrarische sector van de Europese richtlijn inzake productaansprakelijkheid. De voedselketen wordt echter steeds complexer doordat producten vanuit de hele wereld worden betrokken, bedrijven in de ketens intensiever samenwerken en daarmee de grenzen van verantwoordelijkheid van bedrijven in de ketens steeds vager worden. De regulerende overheid is dan ook van mening dat de borging van voedselveiligheid, van 'boer tot bord' een gezamenlijke verantwoordelijkheid is van *alle* bedrijven in de keten samen. Voedselveiligheid, maar in het bijzonder voedselincidenten ontstaan in de voortbrengingsketen (supply chain), staan centraal in dit proefschrift. Het proefschrift concentreert zich rondom het vinden van een antwoord op drie vragen.

De eerste vraag betreft de effecten van verschillende soorten voedselincidenten op het vertrouwen van consumenten. En dan niet alleen op het vertrouwen in het product, maar ook in degenen die het product produceren en distribueren. Voedselincidenten kunnen qua aard nogal verschillen. Zij kunnen op verschillende plaatsen in de voedselketen ontstaan, bijvoorbeeld in het productieproces of tijdens het transport naar de winkel, maar ook tijdens het bereiden van het voedsel door de consument. Bijvoorbeeld door kruisbesmetting. Voedselincidenten kunnen écht per ongeluk ontstaan maar kunnen ook het gevolg zijn van ingesleten gedrag, zoals bijvoorbeeld het veronachtzamen van hygiënevoorschriften in bedrijven. Wanneer een consument geconfronteerd wordt met de gevolgen van een voedselincident, bijvoorbeeld omdat hij ziek wordt na het eten van het product dan zal hij zich afvragen wat nu precies de oorzaak was of wie verantwoordelijk moet worden gehouden. Met andere woorden hij zoekt naar een verklaring of een 'schuldige'. Vaak wordt de oorzaak

van iets onverwachts toegewezen (geattributeerd) aan een ander. In zo'n geval kan het vertrouwen van de consument i n degenen die in zijn ogen betrokken waren, geschaad worden. Ook kan het vertrouwen in het product verminderen.

De tweede onderzoeksvraag richt zich op het vinden van het antwoord op de vraag wat het effect is van de verschillende soorten van response op het herstel van het vertrouwen van de consument. Wanneer een consument een voedselincident meemaakt dan kan dat leiden tot verschillende soorten van gedrag. Hij kan de gevolgen negeren en niets doen, hij kan teruggaan naar de winkel waar het product gekocht is, hij kan contact zoeken met de producent, klagen bij anderen of bij officiële instanties enz. Wanneer een consument actie neemt, bijvoorbeeld door terug te gaan naar de supermarkt, dan zal dat leiden tot een reactie (response) van de supermarkt. Deze reactie kan verschillend zijn. Zo kan de reactie zijn: het aanbieden van verontschuldigingen voor wat de consument overkomen is en terugbetalen van het aankoopbedrag. Ook kan de producent besluiten het product van de markt terug te halen wanneer er meer klachten zijn ontvangen. De vraag is wat het effect is van deze besluiten en hoe deze worden waargenomen door consumenten.

Als derde onderzoeksvraag is geformuleerd of vertrouwen een effect heeft op de bereidheid van consumenten om trouw te blijven aan het product en de winkel (supermarkt) en op de intentie om te klagen over supermarkt en/of producent. Producenten en retailers is er immers alles aan gelegen om het vertrouwen te herstellen en de klant te behouden. De vraag is echter hoe dat proces precies verloopt.

Om een antwoord te vinden op deze drie vragen zijn er vijf studies verricht die nu, met een verwijzing naar de hoofdstukken, samengevat zullen worden.

In *hoofdstuk een* wordt verslag gedaan van *kwantitatief* onderzoek onder een representatieve groep van (2.283) huishoudingen naar daadwerkelijke ervaringen met voedselincidenten. In totaal bleek 29 % van alle ondervraagde huishoudens het afgelopen jaar een voedselincident te hebben meegemaakt, variërend van een vreemd voorwerp in een poduct (bijvoorbeeld een steentje), of het vertonen van een allergische reactie, tot het oplopen van een voedselinfectie bij eten buitenshuis. Opmerkelijk was de lage rapportage van het aantal voedselincidenten dat aan 'het aanrecht' ontstaat, terwijl dat volgens experts de meest voorkomende oorzaak is. Op basis van de gevonden cijfers kan het aantal voedselincidenten per jaar in Nederland geschat worden op *minimaal* 2.4 miljoen. Veel consumenten in het onderzoek gaven aan verschillende acties te hebben overwogen, maar slechts een minderheid ondernam daadwerkelijk actie. Vaak besloot men gewoon het product gewoon weg te gooien, niet meer te kopen of voortaan een ander restaurant te kiezen. Uiteraard is dit een

waarschuwing voor bedrijven omdat door dit gedrag klachten of kwaliteitsafwijkingen onopgemerkt blijven.

Om te begrijpen wat consumenten verstaan onder voedselveiligheid, wie zij daarvoor verantwoordelijk houden en hoe zij voedselincidenten ervaren, wordt in *hoofdstuk twee* de consument aan het woord gelaten. Dit *kwalitatieve* onderzoek was ook een voorbereiding op de studies die in de hoofdstukken vier en vijf worden besproken. Voedselveiligheid is voor de consument onder 'normale' omstandigheden geen écht onderwerp waar men lang bij stilstaat. Men heeft in het algemeen vertrouwen in de veiligheid van voedingsmiddelen, mede door het toezicht dat de overheid uitoefent. Ook heeft men in het algemeen wel vertrouwen in degenen die voedingsmiddelen produceren en distribueren. Door dit gepercipieerde hoge veiligheidsniveau is er bij consumenten soms zelfs sprake van een zekere mate van onverschilligheid. Voor beleidsbepalers en communicatiedeskundigen is het belangrijk hiermee rekening te houden. De beperkte interesse verandert echter wanneer er sprake is van een verandering in de persoonlijke omstandigheden, zoals de zorg voor familieleden met een zwakke gezondheid, de komst van een kind of het optreden van een allergie. Ook op vakantie is de consument meer op zijn hoede. Dit algemene vertrouwen neemt niet weg dat sommige consumenten juist wantrouwig zijn; deze consumenten lijken meer dan gemiddeld te worden aangesproken door de claims van vooral biologische producten. Uit het onderzoek blijkt verder dat een voedselincident altijd als een serieuze aangelegenheid wordt ervaren. Consumenten vinden het daarbij belangrijk dat hun klachten door retailer en producent altijd serieus worden genomen. Voedselveiligheid lijkt verder vooral een emotioneel concept te zijn en wordt geassocieerd met zaken als 'diervriendelijkheid', 'vrij van bestrijdingsmiddelen' en 'biologisch geteeld'. Het veilig zijn van voedsel wordt door de consument als een vanzelfsprekendheid opgevat, de bereidheid om voor voedselveiligheid extra te betalen is dan ook gering. Verantwoordelijkheid voor voedselveiligheid is voor consumenten simpelweg een zaak van alle betrokkenen; wie juridisch verantwoordelijk voor een bepaalde fase in de voortbrengingsketen is niet iets wat de interesse van de consument heeft. De visie van de consument op schuld aan een voedselincident kan dan ook belangrijk afwijken van die van juristen.

Om vast te stellen of de mening van experts (beleidsmakers, voedingsdeskundigen en communicatie experts) verschilt met die van consumenten, komt deze groep eveneens aan het woord in hoofdstuk twee. Ook experts zijn van mening dat voedingsmiddelen in Nederland veilig zijn; zelfs veiliger dan consumenten vaak menen, vinden de experts. De inhoud van het begrip voedselveiligheid wordt bepaald door voortschrijdende kennis en de politieke bepaling

van wat maatschappelijk gezien *on*aanvaardbaar is. Een enkele expert heeft twijfels of bedrijven op het terrein van voedselveiligheid wel willen samenwerken; winstbejag zou een belangrijke obstakel zijn.

Hoofdstuk drie onderzoekt, door middel van vergelijkende gevalstudies[1] de visies van drie partijen (toeleverancier, producent en supermarkt) in vier verschillende voortbrengingsketens (diepvriesproducten, kip, kant-en-klaar maaltijden en groente) met betrekking tot verantwoordelijkheid voor voedselveiligheid, ervaring met voedselincidenten en procedures bij voedselincidenten. Uit de resultaten blijkt dat een aantal bedrijven een sterk technocratische visie op voedselveiligheid heeft. Deze visie wordt gedomineerd door een sterk rationele kijk op veiligheidsniveaus, kansen op incidenten, en preventieve maatregelen. Dit type bedrijven heeft een grote technologische kennis, heeft een sterke marktpositie, kent gedetailleerde protocollen voor incidenten, kan beschikken over specialisten in het geval van grote incidenten en benadert verantwoordelijkheid voor een incident vooral vanuit een juridische invalshoek. Daartegenover staan de veelal kleine bedrijven in de primaire sector voor wie voedselveiligheid vooral een emotionele betekenis heeft. De economische macht van deze bedrijven in de keten is gering en eisen over voedselveiligheid worden veelal door de bovenliggende schakel bepaald. Kennis over voedselveiligheid is meestal informeel en opgebouwd door jarenlange ervaring; voedselincidenten hebben bij deze bedrijven vaak een direct impact op hun bestaan, terwijl de twijfels die geuit worden over de veiligheid van het voedsel de ondernemers persoonlijk raken. Tussen deze twee categorieën van bedrijven bevinden zich de food retailers. Enkelen zijn in staat om zich qua technologische kennis van voedselveiligheid met de grote industriële bedrijven te meten. Door hun directe contact met de consument weten de food retailers dat een voedselincident voor een consument een emotionele gebeurtenis is waar voorzichtig mee moet worden omgegaan. De maatregelen van de retailers zijn er dan ook primair op gericht om de relatie met de consument te bestendigen. Ze gebruiken hun positie in de keten en hun inkoopmacht om hun 'eisen en wensen' over voedselveiligheid te articuleren naar bovenliggende schakels. Overigens kan geconstateerd worden dat ook producenten hun positionele macht in de keten gebruiken om het respecteren van de regels met betrekking tot voedselveiligheid af te dwingen, bijvoorbeeld wanneer het gebruik van diergeneesmiddelen betreft. Over de vraag of er een ketenregisseur is in de keten wanneer het voedselveiligheid betreft en zo ja, wie dat dan wel is, lopen de meningen nogal uiteen. Algemeen wordt ervaren dat het vooral de food retailers zijn die de voorwaarden

[1] Cross-case comparisons

bepalen. Enkelen betwisten echter het recht van de retailers om het regisseurschap te claimen en stellen dat iedere schakel in de keten zijn eigen, afgebakende verantwoordelijkheid voor voedselveiligheid en productkwaliteit heeft. Veel van de geïnterviewde bedrijven beschikken over uitgebreide procedures voor de behandeling van klachten die mogelijk wijzen op een voedselincident. Het terughalen van producten, het compenseren van individuele consumenten en een rechtvaardige behandeling van de consument lijken gemeengoed te zijn, alhoewel de geïnterviewde retailers aangeven dat het terughalen van producten toch nog wel eens met producenten discussie geeft. Meer problemen zijn er met het erkennen van verantwoordelijkheid voor een incident en het communiceren over een incident. Vrees voor mogelijke formele aansprakelijkheid weerhoudt een aantal bedrijven ervan te veel compassie te tonen omdat dit mogelijk kan worden uitgelegd als een vorm van het erkennen van schuld. Het vinden van de juiste balans in het verstrekken van informatie wordt eveneens gezien als een lastige zaak; bedrijven willen voorkomen dat het verstrekken van te weinig informatie leidt tot de indruk van geslotenheid terwijl men anderzijds wil voorkomen onnodige vragen op te roepen door het verstrekken van te veel informatie.

Hoofdstuk vier bespreekt de effecten van verschillen in voedselincidenten op het vertrouwen van consumenten in ketenpartners. Terwijl in traditionele attributie-onderzoeken de actoren beperkt zijn tot twee, namelijk de persoon zelf en een externe actor, is in dit onderzoek het aantal externe actoren uitgebreid tot twee: de producent en de retailer. Daarnaast is het effect op het vertrouwen in het product onderzocht. Door systematisch, onder 1536 consumenten, de dimensies en oorzaak van de incidenten te manipuleren is inzicht verkregen in deze effecten. Het onderzoek heeft een aantal duidelijk nieuwe inzichten opgeleverd. Het laat zien dat consumenten een grotere verantwoordelijkheid toewijzen aan de retailer dan aan de producent wanneer hun de vraag wordt gesteld of de producent respectievelijk de supermarkt verantwoordelijk is voor een incident; consumenten zien de retailer blijkbaar als de 'poortwachter' voor voedselveiligheid. Ook blijken voedselincidenten een veel sterker effect te hebben op het vertrouwen in de producent en de retailer, dan op het vertrouwen in het product. Daarnaast blijken de gevolgen van voorvallen met een stabiele oorzaak (bijvoorbeeld het achterwege blijven van controle op toeleveranciers), zich alleen te richten tegen de veroorzaker zelf. Het effect blijkt bovendien sterker effect te zijn voor incidenten veroorzaakt door de producent dan voor dezelfde soort incidenten veroorzaakt door de supermarkt. Dit laatste wordt waarschijnlijk veroorzaakt door de veronderstelling van consumenten dat incidenten bij producenten een groter effect hebben (bijvoorbeeld potentieel meer producten besmet) dan bij een individuele supermarkt. Incidenten daarentegen waarvan

de gevolgen volgens consumenten te voorzien waren hebben een breder effect. Wanneer bijvoorbeeld de stroom plotseling uitvalt bij een producent van diepvriesproducten dan kan de producent volgens consumenten voorzien dat zijn producten gevaar lopen. Besteedt de producent daar geen aandacht aan en leidt dat tot een voedselincident, dan wordt niet alleen het vertrouwen in de producent aangetast maar ook het vertrouwen in de supermarkt en in het product zelf. Consumenten straffen dus zowel producent als retailer met een daling van het vertrouwen in hen wanneer een voedsel incident te voorkomen was geweest. Gebeurtenissen die zowel een stabiele oorzaak hebben waardoor ook de gevolgen te voorzien zijn, roepen de sterkste negatieve effecten op. Een voorbeeld van zo'n gebeurtenis is het stelselmatig negeren van hygiënevoorschriften door een producent of supermarkt. Consumenten trekken dan de conclusie dat aan dit gedrag een duidelijk negatieve intentie ten grondslag ligt. Het onderzoek laat ook zien dat, veel vaker dan verwacht, consumenten vinden dat een incident te voorkomen is. Een technische visie op een oorzaak is dus niet per definitie gelijk aan een visie die een consument heeft op een oorzaak.

In *hoofdstuk vijf* worden de effecten van reacties door bedrijven op voedselincidenten besproken. Bedrijven zullen immers op een voedselincident reageren om bijvoorbeeld geschonden vertrouwen te herstellen. Het onderzoek leert dat de effecten van de reacties in het algemeen gering zijn. Het incident zelf bepaalt in sterke mate het vertrouwen dat resteert. Het is dus vooral de eerste indruk die de consument krijgt over de oorzaak van een voedselincident en het mogelijk verwijtbare karakter dat het vertrouwen in producent en food retailer bepaalt. Van de maatregelen die genomen (kunnen) worden als reactie op een voedselincident is de indruk van de openheid over het incident en de morele verantwoordelijkheid die genomen wordt voor het incident bepalend voor het effect op vertrouwen. De resultaten laten ook zien dat overdreven reageren op een voedselincident een negatief effect heeft. Bedrijven moeten dus reageren in verhouding tot het incident. De reactie die bedrijven geven op een voedselincident beïnvloedt vooral de intentie van consumenten om te klagen over de supermarkt of de producent. Trouw aan de retailer en trouw aan het product worden vooral bepaald door de mate van vertrouwen dat bestaat na het incident: hoe hoger het vertrouwen, hoe groter de kans dat de consument trouw blijft.

In *hoofdstuk zes* worden tenslotte aanbevelingen gedaan aan bedrijven over hoe te reageren op voedselincidenten en worden suggesties gedaan voor verder onderzoek.

Appendix 1 Questionnaire

Onderzoek naar voedselincidenten

EERSTE RONDE

Vr1 Kunt u aangeven met welk van onderstaande incidenten rondom voedsel u, uw eventuele partner of een van uw gezinsleden wel eens te maken heeft gehad in het laatste jaar?

- Een voedselvergiftiging opgelopen na het eten buitenshuis, bijvoorbeeld in een restaurant of op vakantie
- Een vreemd voorwerp aangetroffen in een voedingsmiddel (bijvoorbeeld een steentje in een product)
- Een product gekocht dat achteraf bedorven of verontreinigd bleek te zijn
- Een product gegeten of gedronken dat een allergische reactie opriep
- Een voedselvergiftiging opgelopen na het eten binnenshuis door bijvoorbeeld een verkeerde bereiding door uzelf, een gezinslid of huisgenoot
- Anders
- Geen incident meegemaakt

Wat voor soort voedselincident hebt u dan meegemaakt?: (open vraag)

TWEEDE RONDE

Introductie

U hebt vorige week aangegeven dat u het afgelopen jaar te maken hebt gehad met (antwoord vorige week). In dit onderzoek zijn we geïnteresseerd in uw ervaringen met voedselincidenten. Het onderzoek maakt deel uit van een groter project van de Universiteit van Tilburg naar voedselincidenten. Het is dan ook van groot belang om de vragen aandachtig door te lezen en zo goed mogelijk te beantwoorden. Er zijn geen goede of foute antwoorden mogelijk, het gaat uitsluitend om uw ervaringen. Alle gegevens uit dit onderzoek zullen strikt vertrouwelijk en anoniem worden behandeld. Alvast bedankt voor uw medewerking.

vr2 Probeert u zich nu de laatste ervaring met ^antwoord vorige week te herinneren. Geef in uw eigen woorden een korte beschrijving van deze gebeurtenis. Geef bijvoorbeeld aan wat volgens u of anderen de (waarschijnlijke) oorzaak was van de gebeurtenis en hoe u hebt gereageerd. Probeert u de gebeurtenis zo duidelijk mogelijk te beschrijven.

vr3 Hoe lang geleden deed deze gebeurtenis zich voor?

1 = minder dan een week geleden

2 =1 week tot een maand geleden

3 = een maand tot een half jaar geleden

4 = een half jaar tot een jaar geleden

vr4 Hoe ernstig vond u dit incident? (7 puntschaal)

1 = helemaal niet ernstig

7 = zeer ernstig

Kunt u aangeven welke acties u **overwogen** hebt?

1 betekent 'helemaal niet overwogen'

7 betekent 'in zeer sterke mate overwogen'

8 betekent 'niet van toepassing'

vr5vr1 Niet meer buitenshuis eten

vr5vr2 Voortaan in een ander restaurant eten

vr5vr3 Het product niet meer kopen

vr5vr4 Voortaan een ander merk kopen

vr5vr5 Voortaan in een andere winkel/supermarkt kopen

vr5vr6 Klagen bij het restaurant

vr5vr7 Klagen bij de winkel/supermarkt

vr5vr8 Klagen bij de producent

vr5vr9 Klagen bij familie en/of bekenden

vr5vr10 Klagen bij officiële instanties

vr5vr11 Geen actie nemen

vr5vr12 Anders

vr5and Welke actie hebt u dan overwogen?

Wilt u aangeven in welke mate u vond dat de onderstaande personen of organisaties verantwoordelijk waren voor het incident:

1 betekent 'helemaal niet verantwoordelijk'
7 betekent 'in zeer sterke mate verantwoordelijk'
8 betekent ' niet van toepassing'

Vr6vr1 De winkel/supermarkt/restaurant of een andere gelegenheid
Vr6vr2 De producent van het product
Vr6vr3 Ikzelf
Vr6vr4 Anderen

vr6and Wie houdt u dan verantwoordelijk (bv. een van de andere gezinsleden)?

vr6a Kunt u kort aangeven waarom u vond dat deze personen of organisaties verantwoordelijk waren voor het incident?

Wilt u aangeven in welke mate uw vertrouwen in de persoon of organisatie ná het voedselincident was verminderd?

1 betekent 'helemaal niet verminderd'
7 betekent 'in zeer sterke mate verminderd'
8 betekent ' niet van toepassing'

vr7vr1 De winkel/supermarkt/restaurant of een andere gelegenheid
vr7vr2 De producent van het product
vr7vr3 Anderen

vr7and Wie bedoelt u met anderen (bv. een van de andere gezinsleden)?

vr7a Kunt u kort aangeven waarom uw vertrouwen in de persoon of organisatie ná het voedselincident was verminderd?

Wilt u aangeven in welke mate u vond dat het incident te voorkómen was geweest door een of meer van deze personen:

1 betekent 'was zeker niet te voorkomen'
7 betekent 'was zeker te voorkomen'
8 betekent ' niet van toepassing'

vr8vr1 Door de winkel/supermarkt/restaurant of een andere gelegenheid
vr8vr2 Door de producent van het product
vr8vr3 Door mezelf
vr8vr4 Door anderen

vr8and Wie bedoelt u (bv. een van de andere gezinsleden)

vr8a Kunt u kort aangeven waarom u vond dat het incident te voorkómen was geweest door een of meer van deze personen

Appendix 2

DESCRIPTIVES FOOD SAFETY INCIDENTS

	Food-borne illness after eating out-of-home (N= 53)	Foreign body in food product (N= 53)	Food product bought was tainted or contaminated (N=49)	Food product caused allergic or intolerance reaction (N= 48)
Timeline of reported incident (%)				
o 1 week/1 month ago	11	15	27	25
o 1 month/6 months ago	24	19	38	35
o 6 months/ 1 year ago	65	66	35	40
Total	100	100	100	100
Average age respondent (years)	47	51	50	44
Gender:				
o Male	58	52	61	46
o Female	42	48	39	54
Total	100	100	100	100
Average household size (persons)	2.5	2.5	2.4	2.6
Average number of children in household	0.8	.07	.07	.08

Appendix 3 Sample focus groups

- in absolute numbers-

Age	Number
Up to 30 years	4
30-40 years	11
Older than 40 years	9
total	24
Civil state	
single	2
widow	1
married	14
divorced	4
living together	3
total	24
Social class	
A	-
B1	5
B2	8
C	9
D	2
total	24
Children	
with children	16
without children	8
total	24

Appendix 4 Experts interviewed

Governmental authorities

- Ministry of Agriculture, Nature and Food Quality
  - Mevrouw Drs. F. Kiewiet de Jonge-Lulofs
- Ministry of Health, Welfare and Sport.
  - Mevrouw drs A.G. Toorop,
- Food and Consumer Product Safety Authority
  - Ir. J.A. van Kooij

Communication experts

- de InformatieWerkPlaats, drs B. Mulder
- Van Hulzen Public Relations Advisors, de heer. E. Muller
- Voedings Centrum, Ir. B. Breedveld

Branche organisations

- Centraal Buro levensmiddelen (CBL), Mevrouw drs. S. de Jong en Mevrouw Ir. L. Elsinga
- Federatie Nederlandse levensmiddelen Industrie, Mevrouw Ir. E. Klitsie

Appendix 5 Rationale food safety incidents

The rational to choose the product group of *chicken* has to do with on one hand the popularity of the product group and the other hand the vulnerability of this product group with respect to food safety. In recent years the product category was frequently confronted with incidents like the contamination with Dioxin and Nitrofuran. The poultry industry is working hard to reduce the number of Salmonella and Campylobacter induced food infections. The rational to choose the product group of ready-to-eat meals has to do with the growing popularity of this product groups. According to *VMT news* more than 20 million ready-to-eat meals were sold in 2002, an increase of 33% compared to the year before. More than 62% of the consumers eat regularly such a meal. According to the *Ministerie van LNV* convenience food are vulnerable to food infections, due to the use of pre-cut vegetables

Food safety incidents related to consumers

- Experts are of the opinion approximately 20% of the outbreak of food borne illnesses are caused by mishandling of food products at home. Insufficient hygiene, improper cooking and mistakes when storing food products are the most important sources.
- The government perceives hygiene by the consumers as an important area to work on (*brief van de Minister van VWS en LNV aan Tweede kamer in het kader van van het standpunt over advies Voedselinfecties Gezondheidsraad 2002)*

Food safety incidents related to supermarkets

- Too low storage temperatures in supermarkets are frequently reported by de *Voedsel en Waren Authoriteit.*

Food safety incidents related to producers

- The numbers of incidents and scandals with food are well known.
- About government control in slaughterhouses: *'het overheidstoezicht op de slachthygine zal op hoog niveau gehandhaafd blijven. Dit omdat gebleken is dat de hygiene van de slachterijen verslechtert zodar de overheidscontrole afneemt'.*

Some collected press articles about food safety incidents:

- Ziek en misselijk van piloze druif *(BN de Stem 13-05-03)*

- Vleesafval in frikadel verwerkt *(BN de Stem 05-06-04)*
- Advies om geen rauwe eieren te eten *(NRC 26-10-05)*
- Hormoon in veevoer aanpakken (BN de Stem 23-06-03)
- Voedselautoriteit legt fabriek stil vanwege gebruik bedorven vlees (NRC 22-05-04)
- Doden door slechte hygiëne slachthuizen *(www.planet.nl 24-07-04)*
- VWA laat partij veevoer blokkeren *(www.planet.nl 02-02-2005)*
- Besmet vee wellicht al verkocht. Twee boeren gearresteerd *(BN de Stem 15-05-05)*
- Besmette melk mogelijk in veevoer verwerkt *(www.planet.nl 18-06-2005)*
- Eierverpakker geschorst wegens fraude *(www.planet.nl 25-07-2005)*
- Meer bedorven vlees in Duitsland. Houdbaarheidsdatum verstreken maar etiketten overgeplakt. *(NRC 1-12-05)*
- 10% groente en fruit bevat te veel gif. *(Volkskrant 2-11-2001)*
- Salmonella in de salade *(NRC 23-03-02)*
- Verboden hormoon ook in frisdranken *(NRC 9-7-2002)*

Appendix 6 Constructs and operationalisation

Pre-trust/post-trust in the supermarket[i]

- I still trust this supermarket if this should happen to me *(question 1 + 54)*
- I feel I can still trust this supermarket completely if this has happened to me *(question3 + 56)*
- I feel this supermarket has fait intentions [ii] *(question4 +57)*
- I expect this supermarket looks in general well-groomed *(question 5 + 58)*

(7-point Likert scale)

Pre-trust/post-trust in the producer[iii]

- I still trust the supplier of the chicken (ready-meal) if this should happen to me *(question 6 + 59)*
- I feel the supplier of the chicken (ready-meal) has fair intentions [iv] *(question 8 + 61)*
- I feel I can still trust the supplier of this chicken (ready-meal) completely if this has happened to me *(question 9 + 62)*
- I expect the supplier of this chicken (ready-meal) delivers in general products of a good quality *(question 10 + 63)*

(7-point Likert scale)

Pre-trust/post-trust (in the product)[v]

- Chicken (ready-meals) meet food safety requirements *(question 12 + 65)*
- I feel I can completely rely on the quality of chicken (ready-meals) *(question13 + 66)*
- I can fully trust the quality of chicken (ready-meal) *(question 14 + 67)*
- I easily eat chicken (ready-meal) *(question 15 + 68)*

(7-point Likert scale)

Responsibility

- The answer of the supermarket is fair *(question 30)*
- The supermarket is concerned about this consumer *(question 31)*
- The supermarket just states something *(question 32 reversed)*
- The supermarket acts carefully *(question 34)*
- The supermarket tries to pass on the issue *(question 35 reversed)*

(7-point Likert scale)

Initiative

Items:

- The decision made about the product in the stores is rather passive *(question 36 reversed)*
- The decision about the product in the stores shows thoroughness *(question 37)*
- The supermarket takes the right measures *(question 39)*The decision made about the product in the stores is based on self-interest *(question 40 reversed)*
- This decision is based on self-interest *(question 41 reversed)*

(7-point Likert scale)

Justice (distributive)[vi]

- Taking everything into consideration, the supermarket's offer was quite fair *(question 42)*
- This consumer did get from the supermarket what he deserved *(question 43)*
- Given the circumstances, this consumer received adequate compensation from the supermarket *(question 44)*

(7-point Likert scale)

Justice (interactional)[vii]

- The supermarket seems to care about this consumer *(question 45)*
- The supermarket treats this consumer with respect *(question 46)*
- The supermarket treats the consumer 's complaint carefully *(question 47)*

(7-point Likert scale)

Openness

- The parties involved will be easily accessible to supply information *(question 48)*
- The information that will be provided about the event will be reliable *(question 49)*
- The parties involved will hide information *(question 50 reversed)*
- The information about the event will be very understandable *(question 51)*
- Consumers always can contact one of the parties involved with their questions *(question 52)*
- The information provided will be fact-based *(question 53)*

(7-point Likert scale)

Negative word-of-mouth intentions[viii]

- If this happens to me I would complain to my friends and relatives about this supermarket *(question 68)**
- If this happens to me I would complain to my friends and relatives about this supplier *(question 70)*
- If this happens to me I would make sure to tell my friend and relatives not to shop at this supermarket *(question 71)**
- If this happens to me I would recommend my friends and relatives not to buy a chicken (ready-meal) from this supplier *(question 72)**
- How likely would you be to warn your friends and relatives not to buy a chicken (ready-meal) in this supermarket if this has happened to you? (*question 75)*
- How likely would you be to warn your friends and relatives not to buy a chicken (ready-meal) from this supplier if this has happened to you? *(question 76)**

(7-point Likert scale)

Repatronage Intentions[ix]

- What is the likelihood that you would continue buying a chicken (ready-meal) at this supermarket is this has happened to you? *(question 73)*
- What is the likelihood that you would continue buying chicken (ready-meals) if this has happened to you? *(question 74)*
  (7-point Likert scale)

[i] Adapted from Lau and Lee (1999), "Consumers' Trust in a Brand and the Link to Brand Loyalty," *Journal of Market Focused Management*, [4]. Used to measure 'trust in the Company. Items:

- I do not trust this company
- I believe that this company will not try to cheat me
- I feel that I can trust this company completely
- I feel that I can rely on this company to manufacture products that work well

Lau and Lee adapted one item from the work of Larzelere and Hustons (1980) to measure trust in a partner; another item was adapted from the faith sub-scale of Remple *et al.'s* (1985).

[ii] Suggested by I. Geyskens

[iii] See note i.

[iv] Suggested by I. Geyskens

[v] Adapted from Lau and Lee (1999), "Consumers' Trust in a Brand and the Link to Brand Loyalty," *Journal of Market Focused Management*, [4]. The trust scale of Remple et al's (1985) was to measure 'trust in the brand'. Items:

- I trust this brand
- This brand cannot be counted on to do its job
- I feel that I can trust this brand completely
- I cannot rely on this brand
- I feel secure when I buy this brand because I know that it will never let me down

[vi] Adapted from Blodgett, Jeffrey G, Donna J. Hill, and Stephen S. Tax (1997), "The Effects of Distributive, Procedural, and Interactional Justice on Postcomplaint Behavior," *Journal of Retailing*, 73(2), page 185-210. 3 out of 4 items used:

- Taking everything into consideration, the manager's offer was quite fair
- The customer did not get what was deserved (i.e. regarding a refund or exchange)
- Given the circumstances, I feel that the retailer offered adequate compensation

[vii] Adapted from Blodgett, Jeffrey G, Donna J. Hill, and Stephen S. Tax (1997), "The Effects of Distributive, Procedural, and Interactional Justice on Postcomplaint Behavior," *Journal of Retailing*, 73(2), 185-210. 2 out of 4 Items used:

- The employees seemed to care about the customer
- The customer was treated with courtesy and respect

[viii] Adapted from Blodgett, Jeffrey G, Donna J. Hill, and Stephen S. Tax (1997), "The Effects of Distributive, Procedural, and Interactional Justice on Postcomplaint Behavior," *Journal of Retailing*, 73(2), 185-210.

- If this had happened to me I would complain to my friends and relatives about this store
- If this has happened to me I would make sure to tell my friends and relatives not to shop at this store
- How likely would you be to warn your friends and relatives not to shop at this retail store?

[ix] Adapted from Blodgett, Jeffrey G, Donna J. Hill, and Stephen S. Tax (1997), "The Effects of Distributive, Procedural, and Interactional Justice on Postcomplaint Behavior," *Journal of Retailing*, 73(2), 185-210. 2 out of 3 items used:

- What is the likelihood that you would shop at this retail store in the future?
- If this situation had happened to me I would never shop at this store again
- If this had happened to me I would still shop at this store in the future

*= not included in pre-test

OVERVIEW OF VIGNETTES USED

Product group: Chicken

Locus:	Controllability:	Stability:	Event nr:	Sample size (N)	Vignette:
Consumer	controllable	unstable	1	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection. It appears afterwards that the consumer was in a hurry that evening, and did not fry the chicken product long enough. The consumer knew that frying time was important.
Consumer	controllable	stable	2	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection. It appears afterwards that a dirty dishcloth had infected the chicken. Dishcloths always lay around for a while, as the consumer does not take much care of hygiene.
Consumer	uncontrollable	unstable	3	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection. It appears afterwards that the temperature system of consumer's refrigerator was temporary out of control. Therefore the temperature had risen too much. The consumer had not noticed this defect.
Consumer	uncontrollable	stable	4	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection. It appears afterwards that the consumer had becomes very sensitive to certain food ingredients, due to his high age. Up till now the consumer had eaten chicken without any problem.
Supermarket	controllable	unstable	5	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection. It appears afterwards that through a sudden power disruption the temperature in the cooling cabinet of the supermarket had raised too much. As a result the chickens were tainted.
Supermarket	controllable	stable	6	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection. It appears afterwards that the supermarket does not comply with the hygiene code for years. As a result a bacterial infection was born.

Appendix 7 (cont'd)

OVERVIEW OF VIGNETTES USED

Product group: Chicken (continued)					
Locus:	**Controllability:**	**Stability:**	**Event nr.**	**Sample Size (N)**	**Vignette**
Supermarket	uncontrollable	unstable	7	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection. It appears afterwards that the containers with the chickens in it had stand too long, while unloading by the supermarket personnel, in the heat of a tropical summer day due to a fire in an adjacent shop. The supermarket personnel had not noticed the decay.
Supermarket	uncontrollable	stable	8	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection. It appears afterwards that personnel of an external maintenance firm who controlled the cold storage rooms in the supermarket, never controlled properly. They always signed the control report for 'OK' despite of large undesirable variations in temperature. The supermarket was not aware of this behavior.
Producer	controllable	unstable	9	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection. It appears afterwards that through a sudden power disruption the temperature in the cold storage room at the producer premises had raised too much. As a result the chickens were tainted.
Producer	controllable	stable	10	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection. It appears afterwards that the producer does not comply with the hygiene code for years. As a result a bacterial infection was born.
Producer	uncontrollable	unstable	11	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection. It appears afterwards that the cooling equipment of producer's van had not functioned properly during transport for a short period of time. As it was a tropical day, the chicken products were tainted. The driver had not noticed the defect of the cooling equipment.
Producer	uncontrollable	stable	12	64	A consumer buys a chicken product in a supermarket and prepares it at homes. After eating the chicken product, the consumer becomes ill for a short period of time, as a result of a food infection It appears afterwards that the chickens were delivered to the producer by a poultry-farmer who always filled in the quality reports in a way favorable for him. The producer did not know these reports were not right.

Appendix 7 (cont'd)

OVERVIEW OF VIGNETTES USED

Product group: Ready-to-eat meals					
Locus:	**Controllability:**	**Stability:**	**Event nr:**	**Sample size (N)**	**Vignette:**
Consumer	controllable	unstable	1	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that the consumer had forgotten to store the ready-to-eat meal in the refrigerator after shopping, as the consumer was in a hurry. Normally the consumer never forgets this.
Consumer	controllable	stable	2	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that a dirty dishcloth had infected the ready-to-eat meal. Dishcloths always lay around for a while, as this consumer does not take much care of hygiene.
Consumer	uncontrollable	unstable	3	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that the temperature system of consumer's refrigerator was temporary out of control. Therefore the temperature has risen too much. The consumer had not noticed this defect.
Consumer	uncontrollable	stable	4	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that the consumer had become very sensitive to certain food ingredients due to his high age. Up till now the consumer had eaten ready-to-eat meals without any problem.
Supermarket	controllable	unstable	5	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that through a sudden power disruption the temperature in the cooling cabinet of the supermarket had raised too much. As a result the ready-to-eat meals were tainted.
Supermarket	controllable	stable	6	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that the supermarket does not comply with the hygiene code already for years. As a result a bacterial infection was born.

Appendix 7 (cont'd)

OVERVIEW OF VIGNETTES USED

Product group: Ready-to-eat meals (continued)					
Locus:	**Controllability:**	**Stability:**	**Event nr.**	**Sample Size (N)**	**Vignette**
Supermarket	uncontrollable	unstable	7	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that the containers with the ready-to-eat meals had stand too long, while unloading by the supermarket personnel, in the heat of a tropical summer day due to a fire in an adjacent shop. The supermarket personnel had not noticed the decay.
Supermarket	uncontrollable	stable	8	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that personnel of an external maintenance firm who controlled the cold storage rooms in the supermarket never controlled properly. They always signed the control report for 'OK' despite of large undesirable variations in temperature. The supermarket was not aware of this behavior.
Producer	controllable	unstable	9	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that through a sudden power disruption the temperature in the cold storage room at the producer premises had raised too much. As a result the ready-to-eat meals were tainted.
Producer	controllable	stable	10	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that the producer does not comply with the hygiene code already for years. As a result a bacterial infection was born.
Producer	uncontrollable	unstable	11	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that the cooling equipment of producer's van had not functioned properly during transport for a short period of time. As it was a tropical day, the ready-to-eat meals were tained. The driver had not noticed the defect of the cooling equipment.
Producer	uncontrollable	stable	12	64	A consumer buys a ready-to-eat meal in a supermarket. After eating the meal the consumer becomes sick for a short period of time, as a result of a food infection. It appears afterwards that some of the ingredients were delivered to the producer by a farmer who always filled in the quality reports in a way favorable for him. The producer did not know these reports were not right.

Appendix 8 Vignettes of channel responses

Response 1: VL EL CL IL OL

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer and also refunds the amount of purchase.
The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like the supermarket and the producer, try to keep the incident private. They supply the media hardly any information.

Response 2: VL EL CL IL OH

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer and also refunds the amount of purchase.
The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 3: VL EH CL IL OL

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase. The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken.
The parties who are possibly involved in the incident, like the supermarket and the producer, try to keep the incident private. They supply the media hardly any information.

Response 4: VL EH CL IL OH

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase. The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken.
The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information

Response 5: VL EL CH IL OL

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience.
The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like the supermarket and the producer, try to keep the incident private. They supply the media hardly any information.

Response 6: VL EL CH IL OH

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience.
The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 7: VL EH CH IL OL

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience. The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken.
The parties who are possibly involved in the incident, like the supermarket and the producer, try to keep the incident private. They supply the media hardly any information.

Response 8: VL EH CH IL OH

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience. The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 9: VL EL CL IH OL

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer and also refunds the amount of purchase.
The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, however, do try to keep the incident private. They supply the media hardly any information.

Response 10: VL EL CL IH OH

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer and also refunds the amount of purchase.
The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 11: VL EH CL IH OL

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, however, do try to keep the incident private. They supply the media hardly any information.

Response 12: VL EH CL IH OH

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 13: VL EL CH IH OL

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer.

The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, however, do try to keep the incident private. They supply the media hardly any information.

Response 14: VL EL CH IH OH

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 15: VL EH CH IH OL

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologize for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience.
The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, however, do try to keep the incident private. They supply the media hardly any information.

Response 16: VL EH CH IH OH

The supermarket states that a food infection can have many causes and is most often caused by the consumers themselves. Therefore the supermarket cannot be held responsible for what has happened to the consumer. The supermarket, however, does apologizes for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience.
The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 17: VH EL CL IL OL

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer and also refunds the amount of purchase.
The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like

the supermarket and the producer, try to keep the incident private. They supply the media hardly any information.

Response 18: VH EL CL IL OH

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer and also refunds the amount of purchase. The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 19: VH EH CL IL OL

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase. The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like the supermarket and the producer, try to keep the incident private. They supply the media hardly any information.

Response 20: VH EH CL IL OH

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase. The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 21: VH EL CH IL OL

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience. The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like the supermarket and the producer, try to keep the incident private. They supply the media hardly any information.

Response 22 VH EL CH IL OH

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience. The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are

possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 23 VH EH CH IL OL

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience.
The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like the supermarket and the producer, try to keep the incident private. They supply the media hardly any information.

Response 24 VH EH CH IL OH

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience. The supermarket decides to request the producer to examine the product and wants to wait for his findings before further steps will be taken. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 25 VH EL CL IH OL

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer and also refunds the amount of purchase. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, try to keep the incident private. They supply the media hardly any information.

Response 26 VH EL CL IH OH

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer and also refunds the amount of purchase. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 27: VH EH CL IH OL

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the

consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, however, do try to keep the incident private. They supply the media hardly any information.

Response 28: VH EH CL IH OH

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 29: VH EL CH IH OL

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, however, do try to keep the incident private. They supply the media hardly any information.

Response 30: VH EL CH IH OH

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

Response 31: VH EH CH IH OL

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, however, do try to keep the incident private. They supply the media hardly any information.

Response 32: VH EH CH IH OH

The supermarket states that they always feel responsible for the quality of a product bought in their supermarket, regardless of who is at fault. The supermarket apologizes for what has happened to the consumer and promised to inform the consumer about the outcome of the inquiry that will take place. The supermarket also refunds the amount of purchase together with a coupon to compensate for the inconvenience. The producer, who was informed by the supermarket, decides voluntarily to recall the product. Consumers are advised through the media not to consume the product but to return it to the supermarket. The parties who are possibly involved in the incident, like the supermarket and the producer, show a large degree of openness to everybody who asks for information.

*** Explanations of the codes**:

VH: responsibility high (*verantwoordelijkheid hoog*)
VL: responsibility low (*verantwoordelijkheid laag*)
EH: apologizes high *(excuus hoog)*
EL: apologizes low *(excuus laag)*
CH: ompensation high (*compensatie hoog*)
CL: compensation low *(compensatie laag)*
IH: initiative high *(initiatief hoog*)
IL: initiative low *(initiatief laag)*
OH: openness high *(openheid hoog)*
OL: openness low *(openheid laag)*

Appendix 9 Questionnaire

VR Ik vertrouw deze supermarkt nog wel wanneer mij dit zou overkomen.

VR2 Ik geloof dat deze supermarkt de bedoeling had de consument te bedriegen.

VR3 Ik heb het gevoel dat ik deze supermarkt nog volledig kan vertrouwen wanneer mij dit zou overkomen.

VR4 Ik heb het gevoel dat deze supermarkt eerlijke bedoelingen heeft.

VR5 Ik verwacht dat deze supermarkt er doorgaans verzorgd uitziet.

De volgende vragen zijn voorgelegd aan de kip-respondenten

VR6KIP Ik vertrouw de producent van deze kip nog wel wanneer mij dit zou overkomen.

VR7KIP Ik geloof dat de producent van de kip de bedoeling had deze consument te bedriegen.

VR8KIP Ik heb het gevoel dat de producent van deze kip eerlijke bedoelingen heeft.

VR9KIP Ik heb het gevoel dat ik de producent van deze kip nog volledig kan vertrouwen wanneer dit mij zou overkomen.

VR10KIP Ik verwacht dat de producent van deze kip doorgaans producten levert van goede kwaliteit.

De volgende vragen zijn zijn voorgelegd aan de kant-en-klaar-respondenten

VR6KK Ik vertrouw de producent van deze kant-en-klaar maaltijd nog wel wanneer dit mij zou overkomen.

VR7KK Ik geloof dat de producent van de kant-en-klaar maaltijd de bedoeling had de consument te bedriegen.

VR8KK Ik heb het gevoel dat de producent van deze kant-en-klaar maaltijd eerlijke bedoelingen heeft.

VR9KK Ik heb het gevoel dat ik de producent van deze kant-en-klaar nog volledig kan vertrouwen wanneer dit mij zou overkomen.

VR10KK Ik verwacht dat de producent van deze kant-en-klaar maaltijd doorgaans producenten levert van goede kwaliteit.

De volgende vragen zijn zijn voorgelegd aan de kip-respondenten

VR11KIP Ik zal in de toekomst zonder zorg kip eten.

VR12KIP Kip voldoet aan de eisen die aan de veiligheid van voedsel worden gesteld.

VR13KIP Ik heb het gevoel dat ik de kwaliteit van kip volledig kan vertrouwen.

VR14KIP Ik kan me op de kwaliteit van kip verlaten.

VR15KIP Ik voel me gerust wanneer ik kip zou eten.

De volgende vragen zijn zijn voorgelegd aan de kant-en-klaar-respondenten

VR11KK Ik zal in de toekomst zonder zorg een kant-en-klaar maaltijd eten.

VR12KK Kant-en-klaar maaltijden voldoen aan de eisen die aan de veiligheid van voedsel worden gesteld.

VR13KK Ik heb het gevoel dat ik de kwaliteit van kant-en-klaar maaltijden volledig kan vertrouwen.

VR14KK Ik kan me op de kwaliteit van kant-en-klaar maaltijden verlaten.

VR15KK Ik voel me gerust wanneer ik een kant-en-klaar maaltijd zou eten.

VR16 Hoe duidelijk is deze gebeurtenis volgens u geformuleerd?

VR17 Hoe realistisch is deze gebeurtenis volgens u?

VR18 Hoe ernstig is deze gebeurtenis volgens u?

VR19 In welke mate is volgens u de consument verantwoordelijk voor wat er is gebeurd?

VR20 In welke mate is volgens u de producent verantwoordelijk voor wat er is gebeurd?

VR21 In welke mate is volgens u de supermarkt verantwoordelijk voor wat er is gebeurd?

De volgende vragen verschillen per gebeurtenis. Het getal na 'vr' is het nummer van de vraag in de oorspronkelijke vragenlijst. De 'g' staat voor gebeurtenis. Na 'g' staat het nummer van de gebeurtenis

VR22G1 Had volgens u de consument deze te korte bereiding van de kip kunnen voorkomen?

VR23G1 Had volgens u de producent van de kip deze te korte bereiding van de kip kunnen voorkomen?

VR24G1 Had volgens u de supermarkt deze te korte bereiding van de kip kunnen voorkomen?

VR25G1 Hoe groot acht u de kans dat deze consument in de toekomst zo'n fout in de bereiding nog eens zal maken?

VR26G1 Volgens mij is hier écht sprake van een ongelukje.
VR27G1 Deze gebeurtenis kenmerkt het gedrag van de consument.

VR22G2 Had volgens u de consument deze besmetting via een vuile vaatdoek kunnen voorkomen?

VR23G2 Had volgens u de producent van de kip deze besmetting via een vuile vaatdoek kunnen voorkomen?

VR24G2 Had volgens u de supermarkt deze besmetting via een vuile vaatdoek kunnen voorkomen?

VR25G2 Hoe groot acht u de kans dat deze consument in de toekomst nog eens een voedselinfectie zal oplopen door zijn onhygiënisch gedrag?

VR26G2 Volgens mij is hier écht sprake van een ongelukje.

VR27G2 Deze gebeurtenis kenmerkt de consument.

VR22G3 Had volgens u de consument het plotseling defect raken van de koelkast kunnen voorkomen?

VR23G3 Had volgens u de producent van de kip het plotseling defect raken van de koelkast kunnen voorkomen?

VR24G3 Had volgens u de supermarkt het plotseling defect raken van de koelkast kunnen voorkomen?

VR25G3 Hoe groot acht u de kans dat deze consument in de toekomst nog eens een voedselinfectie zal oplopen door een defect van de koelkast?

VR26G3 Volgens mij is hier écht sprake van een ongelukje.

VR27G3 Deze gebeurtenis kenmerkt de consument.

VR22G4 Had volgens u de consument deze gevoeligheid voor bepaalde voedingsmiddelen kunnen voorkomen?

VR23G4 Had volgens u de producent van deze kip deze gevoeligheid voor bepaalde voedingsmiddelen kunnen voorkomen?

VR24G4 Had volgens u de supermarkt deze gevoeligheid voor bepaalde voedingsmiddelen kunnen voorkomen?

VR25G4 Hoe groot acht u de kans dat deze consument in de toekomst nog eens een voedselinfectie zal oplopen door zijn hoge leeftijd?

VR26G4 Volgens mij is hier écht sprake van een ongelukje.

VR27G4 Deze gebeurtenis kenmerkt de consument.

VR22G5 Had volgens u de consument deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR23G5 Had volgens u de producent van de kip deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR24G5 Had volgens u de supermarkt deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR25G5 Hoe groot acht u de kans dat in de toekomst het plotseling uitvallen van de stroom in deze supermarkt nog eens de oorzaak zal zijn van een voedselinfectie?

VR26G5 Volgens mij is hier écht sprake van een ongelukje.

VR27G5 Deze gebeurtenis kenmerkt de supermarkt.

VR22G6 Had volgens u de consument deze bacteriële besmetting kunnen voorkomen?

VR23G6 Had volgens u de producent van de kip deze bacteriële besmetting kunnen voorkomen?

VR24G6 Had volgens u de supermarkt deze bacteriële besmetting kunnen voorkomen?

VR25G6 Hoe groot acht u de kans dat deze supermarkt zich in de toekomst wel aan de voorgeschreven hygiënecode zal houden?

VR26G6 Volgens mij is hier écht sprake van een ongelukje.

VR27G6 Deze gebeurtenis kenmerkt de supermarkt.

VR22G7 Had volgens u de consument deze vertraging in het lossen van de vrachtwagen kunnen voorkomen?

VR23G7 Had volgens u de producent van de kip deze vertraging in het lossen van de vrachtwagen kunnen voorkomen?

VR24G7 Had volgens u de supermarkt deze vertraging in het lossen van de vrachtwagen kunnen voorkomen?

VR25G7 Hoe groot acht u de kans dat in de toekomst zo'n gebeurtenis nog eens de oorzaak van een voedselinfectie zal zijn?

VR26G7 Volgens mij is hier écht sprake van een ongelukje.

VR27G7 Deze gebeurtenis kenmerkt de supermarkt.

VR22G8 Had volgens u de consument het invullen van niet juiste gegevens door de man van het onderhoudsbedrijf kunnen voorkomen?

VR23G8 Had volgens u de producent van de kip het invullen van niet juiste gegevens door de man van het onderhoudsbedrijf kunnen voorkomen?

VR24G8 Had volgens u de supermarkt het invullen van niet juiste gegevens door de man van het onderhoudsbedrijf kunnen voorkomen?

VR25G8 Hoe groot acht u de kans dat in de toekomst de man van het onderhoudsbedrijf de keuringsrapporten zomaar met goed blijft invullen zonder werkelijk te controleren?

VR26G8 Volgens mij is hier écht sprake van een ongelukje.

VR27G8 Deze gebeurtenis kenmerkt het onderhoudsbedrijf.

VR22G9 Had volgens u de consument deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR23G9 Had volgens u de producent van de kip deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR24G9 Had volgens u de supermarkt deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR25G9 Hoe groot acht u de kans dat in de toekomst het plotseling uitvallen van de stroom bij deze producent nog eens de oorzaak zal zijn van een voedselinfectie?

VR26G9 Volgens mij is hier écht sprake van een ongelukje.

VR27G9 Deze gebeurtenis kenmerkt de producent.

VR22G10 Had volgens u de consument deze bacteriële besmetting kunnen voorkomen?

VR23G10 Had volgens u de producent van de kip deze bacteriële besmetting kunnen voorkomen?

VR24G10 Had volgens u de supermarkt deze bacteriële besmetting kunnen voorkomen?

VR25G10 Hoe groot acht u de kans dat deze producent zich in de toekomst wel aan de voorgeschreven hygiënecode zal houden?

VR26G10 Volgens mij is hier écht sprake van een ongelukje.

VR27G10 Deze gebeurtenis kenmerkt de producent.

VR22G11 Had volgens u de consument het ongemerkt uitvallen van de koeling in de vrachtwagen kunnen voorkomen?

VR23G11 Had volgens u de producent van de kip het ongemerkt uitvallen van de koeling in de vrachtwagen kunnen voorkomen?

VR24G11 Had volgens u de supermarkt het ongemerkt uitvallen van de koeling in de vrachtwagen kunnen voorkomen?

VR25G11 Hoe groot acht u de kans dat in de toekomst zo'n gebeurtenis nog eens de oorzaak van een voedselinfectie zal zijn?

VR26G11 Volgens mij is hier écht sprake van een ongelukje.

VR27G11 Deze gebeurtenis kenmerkt de producent.

VR22G12 Had volgens u de consument het invullen van niet juiste gegevens door het pluimvee bedrijf kunnen voorkomen?

VR23G12 Had volgens u de producent van de kip het invullen van niet juiste gegevens door het pluimvee bedrijf kunnen voorkomen?

VR24G12 Had volgens u de supermarkt het invullen van niet juiste gegevens door het pluimvee bedrijf kunnen voorkomen?

VR25G12 Hoe groot acht u de kans dat in de toekomst het pluimvee bedrijf de keuringsrapporten zo blijft invullen dat deze er goed uitzien?

VR26G12 Volgens mij is hier écht sprake van een ongelukje.

VR27G12 Deze gebeurtenis kenmerkt het pluimvee bedrijf.

VR22G13 Had volgens u de consument deze fout in het bewaren kunnen voorkomen?

VR23G13 Had volgens u de producent van de kant-en-klaar maaltijd deze fout in het bewaren kunnen voorkomen?

VR24G13 Had volgens u de supermarkt deze fout in het bewaren kunnen voorkomen?

VR25G13 Hoe groot acht u de kans dat deze consument in de toekomst zo'n fout in het bewaren nog eens zal maken?

VR26G13 Volgens mij is hier écht sprake van een ongelukje.

VR27G13 Deze gebeurtenis kenmerkt het gedrag van de consument.

VR22G14 Had volgens u de consument deze besmetting via de vuile vaatdoek kunnen voorkomen?

VR23G14 Had volgens u de producent van de kant-en-klaar maaltijd deze besmetting via de vuile vaatdoek kunnen voorkomen?

VR24G14 Had volgens u de supermarkt deze besmetting via de vuile vaatdoek kunnen voorkomen?

VR25G14 Hoe groot acht u de kans dat deze consument in de toekomst nog eens een voedselinfectie zal oplopen door zijn onhygiënisch gedrag?

VR26G14 Volgens mij is hier écht sprake van een ongelukje.

VR27G14 Deze gebeurtenis kenmerkt de consument.

VR22G15 Had volgens u de consument het plotseling defect raken van de koelkast kunnen voorkomen?

VR23G15 Had volgens u de producent van de kant-en-klaar maaltijd het plotseling defect raken van de koelkast kunnen voorkomen?

VR24G15 Had volgens u de supermarkt het plotseling defect raken van de koelkast kunnen voorkomen?

VR25G15 Hoe groot acht u de kans dat deze consument in de toekomst nog eens een voedselinfectie zal oplopen door een defect van de koelkast?

VR26G15 Volgens mij is hier écht sprake van een ongelukje.

VR27G15 Deze gebeurtenis kenmerkt de consument.

VR22G16 Had volgens u de consument deze gevoeligheid voor bepaalde voedingsmiddelen kunnen voorkomen?

VR23G16 Had volgens u de producent van de kant-en-klaar maaltijd deze gevoeligheid voor bepaalde voedingsmiddelen kunnen voorkomen?

VR24G16 Had volgens u de supermarkt deze gevoeligheid voor bepaalde voedingsmiddelen kunnen voorkomen?

VR25G16 Hoe groot acht u de kans dat deze consument in de toekomst nog eens zal oplopen door zijn hoge leeftijd?

VR26G16 Volgens mij is hier écht sprake van een ongelukje.

VR27G16 Deze gebeurtenis kenmerkt de consument.

VR22G17 Had volgens u de consument deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR23G17 Had volgens u de producent van de kant-en-klaar maaltijd deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR24G17 Had volgens u de supermarkt deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR25G17 Hoe groot acht u de kans dat in de toekomst het plotseling uitvallen van de electriciteit nog eens de oorzaak zal zijn van een voedselinfectie?

VR26G17 Volgens mij is hier écht sprake van een ongelukje.

VR27G17 Deze gebeurtenis kenmerkt de supermarkt.

VR22G18 Had volgens u de consument deze bacteriële besmetting kunnen voorkomen?

VR23G18 Had volgens u de producent van de kant-en-klaar maaltijd deze bacteriële besmetting kunnen voorkomen?

VR24G18 Had volgens u de supermarkt deze bacteriële besmetting kunnen voorkomen?

VR25G18 Hoe groot acht u de kans dat deze supermarkt zich in de toekomst wel aan de voorgeschreven hygiënecode zal houden?

VR26G18 Volgens mij is hier écht sprake van een ongelukje.

VR27G18 Deze gebeurtenis kenmerkt de supermarkt.

VR22G19 Had volgens u de consument deze vertraging in het lossen van de vrachtwagen kunnen voorkomen?

VR23G19 Had volgens u de producent van de kant-en-klaar maaltijd deze vertraging in het lossen van de vrachtwagen kunnen voorkomen?

VR24G19 Had volgens u de supermarkt deze vertraging in het lossen van de vrachtwagen kunnen voorkomen?

VR25G19 Hoe groot acht u de kans dat in de toekomst zo'n gebeurtenis nog eens de oorzaak van een voedselinfectie zal zijn?

VR26G19 Volgens mij is hier écht sprake van een ongelukje.

VR27G19 Deze gebeurtenis kenmerkt de supermarkt.

VR22G20 Had volgens u de consument het invullen van niet juiste gegevens door de man van het onderhoudsbedrijf kunnen voorkomen?

VR23G20 Had volgens u de producent van de kant-en-klaar maaltijd het invullen van niet juiste gegevens door de man van het onderhoudsbedrijf kunnen voorkomen?

VR24G20 Had volgens u de supermarkt het invullen van niet juiste gegevens door de man van het onderhoudsbedrijf kunnen voorkomen?

VR25G20 Hoe groot acht u de kans dat in de toekomst de man van het onderhoudsbedrijf de keuringsrapporten zo maar met goed blijft invullen zonder werkelijk te controleren?

VR26G20 Volgens mij is hier écht sprake van een ongelukje.

VR27G20 Deze gebeurtenis kenmerkt het onderhoudsbedrijf.

VR22G21 Had volgens u de consument deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR23G21 Had volgens u de producent van de kant-en-klaar maaltijd deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR24G21 Had volgens u de supermarkt deze voedselinfectie veroorzaakt door het uitvallen van de electriciteit kunnen voorkomen?

VR25G21 Hoe groot acht u de kans dat in de toekomst het plotseling uitvallen van de stroom bij deze producent nog eens de oorzaak zal zijn van een voedselinfectie?

VR26G21 Volgens mij is hier écht sprake van een ongelukje.

VR27G21 Deze gebeurtenis kenmerkt de producent.

VR22G22 Had volgens u de consument deze bacteriële besmetting kunnen voorkomen?

VR23G22 Had volgens u de producent van de kant-en-klaar maaltijd deze bacteriële besmetting kunnen voorkomen?

VR24G22 Had volgens u de supermarkt deze bacteriële besmetting kunnen voorkomen?

VR25G22 Hoe groot acht u de kans dat deze producent zich in de toekomst wel aan de voorgeschreven hygiënecode zal houden?

VR26G22 Volgens mij is hier écht sprake van een ongelukje.

VR27G22 Deze gebeurtenis kenmerkt de producent.

VR22G23 Had volgens u de consument het ongemerkt uitvallen van de koeling in de vrachtwagen kunnen voorkomen?

VR23G23 Had volgens u de producent van de kant-en-klaar maaltijd het ongemerkt uitvallen van de koeling in de vrachtwagen kunnen voorkomen?

VR24G23 Had volgens u de supermarkt het ongemerkt uitvallen van de koeling in de vrachtwagen kunnen voorkomen?

VR25G23 Hoe groot acht u de kans dat in de toekomst zo'n gebeurtenis nog eens de oorzaak van een voedselinfectie zal zijn?

VR26G23 Volgens mij is hier écht sprake van een ongelukje.

VR27G23 Deze gebeurtenis kenmerkt de producent.

VR22G24 Had volgens u de consument het invullen van niet juiste gegevens door de teler kunnen voorkomen?

VR23G24 Had volgens u de producent van de kant-en-klaar maaltijd het invullen van niet juiste gegevens door de teler kunnen voorkomen?

VR24G24 Had volgens u de supermarkt het invullen van niet juiste gegevens door de teler kunnen voorkomen?

VR25G24 Hoe groot acht u de kans dat in de toekomst de teler de keuringsrapporten zo blijft invullen dat deze er goed uitzien?

VR26G24 Volgens mij is hier écht sprake van een ongelukje.

VR27G24 Deze gebeurtenis kenmerkt de teler.

VR30 De supermarkt geeft een rechtvaardig antwoord.

VR31 De supermarkt maakt zich zorgen over deze consument.

VR32 De supermarkt roept zomaar wat.

VR33 De supermarkt neemt de schuld op zich.

VR34 De supermarkt gaat zorgvuldig te werk.

De volgende vragen zijn voorgelegd aan de kip-respondenten

VR35KIP De supermarkt probeert de kwestie af te schuiven.

VR36KIP Het besluit over het product dat in de winkel ligt is nogal passief.

VR37KIP Het besluit over het product dat in de winkel ligt getuigt van grondigheid.

VR38KIP Door de producent van de kip worden de juiste maatregelen genomen.

VR39KIP Door de supermarkt worden de juiste maatregelen genomen.

De volgende vragen zijn voorgelegd aan de kant-en-klaar-respondenten

VR35KK De supermarkt probeert de kwestie af te schuiven.

VR36KK Het besluit over het product dat in de winkel ligt is nogal passief.

VR37KK Het besluit over het product dat in de winkel ligt getuigt van grondigheid.

VR38KK Door de producent van de kant-en-klaar maaltijd worden de juiste maatregelen genomen.

VR39KK Door de supermarkt worden de juiste maatregelen genomen.

VR40 Het besluit over het product dat in de winkel ligt is vooral bedoeld om tijd te winnen.

VR41 Het besluit over het product dat in de winkel ligt is ingegeven door eigenbelang.

VR42 Alles bij elkaar genomen is de compensatie die de supermarkt aanbiedt redelijk.

VR43 Deze consument krijgt van de supermarkt de compensatie die hij verdient.

VR44 Gegeven de omstandigheden, krijgt deze consument een adequate vergoeding van de supermarkt.

VR45 De supermarkt toont zich bezorgd over deze consument.

VR46 De supermarkt behandelt deze consument met respect.

VR47 De supermarkt behandelt de klacht van deze consument zorgvuldig.

VR48 De betrokken partijen zullen makkelijk bereikbaar zijn voor het geven van informatie.

VR49 De informatie die over de gebeurtenis gegeven wordt zal betrouwbaar zijn.

VR50 De betrokken partijen zullen informatie verborgen houden.

VR51 De informatie over de gebeurtenis zal duidelijk te begrijpen zijn.

VR52 Consumenten zullen te allen tijde bij een van de partijen met hun vragen terecht kunnen.

VR53 De informatie die verstrekt wordt zal op feiten gebaseerd zijn.

VR54 Ik vertrouw deze supermarkt nog wel wanneer mij dit zou overkomen.

De volgende vragen zijn voorgelegd aan de kip-respondenten

VR55KIP Ik geloof dat deze supermarkt de bedoeling had de consument te bedriegen.

VR56KIP Ik heb het gevoel dat ik deze supermarkt nog volledig kan vertrouwen wanneer mij dit zou overkomen.

VR57KIP Ik heb het gevoel dat deze supermarkt eerlijke bedoelingen heeft.

VR58KIP Ik verwacht dat deze supermarkt er doorgaans verzorgd uitziet.

VR59KIP Ik vertrouw de producent van deze kip nog wel wanneer mij dit zou overkomen.

VR60KIP Ik geloof dat de producent van de kip de bedoeling had de consument te bedriegen.

VR61KIP Ik heb het gevoel dat de producent van deze kip eerlijke bedoelingen heeft.

VR62KIP Ik heb het gevoel dat ik de producent van deze kip nog volledig kan vertrouwen.

VR63KIP Ik verwacht dat de producent van deze kip doorgaans producten van goede kwaliteit levert.

VR64KIP Ik zal in de toekomst zonder zorg kip eten.

VR65KIP Kip voldoet aan de eisen die aan de veiligheid van voedsel worden gesteld.

VR66KIP Ik heb het gevoel dat ik de kwaliteit van kip volledig kan van vertrouwen.

VR67KIP Ik kan me op de kwaliteit van kip verlaten.

VR68KIP Ik voel me gerust wanneer ik kip zou eten.

VR69KIP Als dit mij zou gebeuren zou ik over deze supermarkt klagen bij mijn vrienden en bekenden.

VR70KIP Als dit mij zou gebeuren zou ik over deze producent klagen bij vrienden en bekenden.

VR71KIP Als dit mij zou gebeuren zou ik vrienden en bekenden aanraden niet in deze supermarkt te kopen.

VR72KIP Als dit mij zou gebeuren zou ik vrienden en bekenden aanraden geen kip van deze producent te kopen.

VR73KIP Hoe waarschijnlijk is het dat u in deze supermarkt kip zou blijven kopen als u dit zou overkomen?

VR74KIP Hoe waarschijnlijk is het dat u kip zou blijven kopen als u dit zou overkomen?

VR75KIP Hoe waarschijnlijk is het dat u vrienden en bekenden zou waarschuwen niet in deze supermarkt een kip te kopen als u dit zou overkomen?

VR76KIP Hoe waarschijnlijk is het dat u vrienden en bekenden zou waarschuwen geen kip van deze producent te kopen als u dit zou overkomen?

De volgende vragen zijn voorgelegd aan de kant-en-klaar-respondenten

VR55KK Ik geloof dat deze supermarkt de bedoeling had de consument te bedriegen.

VR56KK Ik heb het gevoel dat ik deze supermarkt nog volledig kan vertrouwen wanneer mij dit zou overkomen.

VR57KK Ik heb het gevoel dat deze supermarkt eerlijke bedoelingen heeft.

VR58KK Ik verwacht dat deze supermarkt er doorgaans verzorgd uitziet.

VR59KK Ik vertrouw de producent van deze kant-en-klaar maaltijd nog wel wanneer mij dit zou overkomen.

VR60KK Ik geloof dat de producent van deze kant-en-klaar maaltijd de bedoeling had de consument te bedriegen.

VR61KK Ik heb het gevoel dat de producent van deze kant-en-klaar maaltijd eerlijke bedoelingen heeft.

VR62KK Ik heb het gevoel dat ik de producent van deze kant-en-klaar nog volledig kan vertrouwen wanneer mij dit zou overkomen.

VR63KK Ik verwacht dat de producent van deze kant-en-klaar maaltijd doorgaans producten van goede kwaliteit levert.

VR64KK Ik zal in de toekomst zonder zorg een kant-en-klaar maaltijd eten.

VR65KK Kant-en-klaar maaltijden voldoen aan de eisen die aan de veiligheid van voedsel worden gesteld.

VR66KK Ik heb het gevoel dat ik de kwaliteit van kant-en-klaar maaltijden volledig kan vertrouwen.

VR67KK Ik kan me op de kwaliteit van kant-en-klaar maaltijden verlaten.

VR68KK Ik voel me gerust wanneer ik een kant-en-klaar maaltijd zou eten

VR69KK Als dit mij zou gebeuren zou ik over deze supermarkt klagen bij mijn vrienden en bekenden.

VR70KK Als dit mij zou gebeuren zou ik over deze producent klagen bij vrienden en bekenden.

VR71KK Als dit mij zou gebeuren zou ik vrienden en bekenden aanraden niet in deze supermarkt te kopen.

VR72KK Als dit mij zou gebeuren zou ik vrienden en bekenden aanraden geen kant-en-klaar maaltijd van deze producent te kopen.

VR73KK Hoe waarschijnlijk is het dat u in deze supermarkt een kant-en-klaar maaltijd zou blijven kopen als u dit zou overkomen?

VR74KK Hoe waarschijnlijk is het dat u een kant-en-klaar maaltijd zou blijven kopen als u dit zou overkomen?

VR75KK Hoe waarschijnlijk is het dat u vrienden en bekenden zou waarschuwen niet in deze supermarkt een kant-en-klaar maaltijd te kopen als u dit zou overkomen?

VR76KK Hoe waarschijnlijk is het dat u vrienden en bekenden zou waarschuwen geen kant-en- klaar maaltijd van deze producent te kopen als u dit zou overkomen?

VR77 supermarkt: woede

VR78 supermarkt: ergernis

VR79 supermarkt: boosheid

VR80 supermarkt: wraakgevoelens

VR81 supermarkt: het verlangen om de supermarkt terug te pakken

VR82 producent: woede

VR83 producent: ergernis

VR84 producent: boosheid

VR85 producent: wraakgevoelens

VR86 producent: het verlangen om de producent terug te pakken

VR87 Ik heb weinig gebruiksaanwijzingen nodig als ik het soort product al ken.

VR88 Ik ben huiverig om een product te kopen als ik niet weet hoe ik het product moet gebruiken.

VR89 Ik volg altijd de gebruiksaanwijzingen van een fabrikant op.

VR90 Ik hou van improviseren wanneer ik kook.

VR91 Ik ben iemand die ieder nieuw product wel een keer wil proberen.

VR92 Ik kies in een restaurant gerechten die ik ken omdat ik dat veiliger vind.

VR93 Ik koop alleen merken die ik ken.

VR94 Wat ik niet ken koop ik niet om een miskoop te voorkomen.

De volgende vraag is voorgelegd aan de kip-respondenten

KIP Eet u wel eens kip?

De volgende vraag is voorgelegd aan de kant-en-klaar-respondenten

KK Eet u wel eens kant-en-klaar maaltijden?

Vincent Wiegerinck (1951) served in various marketing and sales functions for almost 26 years before he joined the University of Tilburg/CentER Applied Research in September 2000. His specialism is marketing of (fast-moving) consumer goods, on both a national and an international scale. He gained his experience mostly at two internationally operating companies (Akzo Nobel and Quaker Oats) and at a leading Dutch Bakery Group. As Director of Marketing and Commercial Director, he participated several times in international taskforces and project teams for formulating international marketing strategies, product development, and (European) advertising development. Vincent studied marketing and holds an MSc in Business Studies from Radboud University. At present he is a lecturer in International Business, Business Economics, and Business Studies at the Marketing Department of Tilburg University, and senior researcher with CentER Applied Research.

A food safety incident can occur at any point in the food supply chain: in factories, supermarkets, restaurants, or the consumer's kitchen; in short, at any point in the process from 'farm to fork'. This dissertation presents the results of five studies, in which we investigated the effects of food safety incidents in the supply chain on consumers' trust, as well as the effects on trust of supply chain responses to these incidents. In the first study, it was investigated how people react to food safety incidents, what types of actions they consider, and what they actually do. The focus of the second and third studies was on the attitudes of consumers and experts to food safety, food safety incidents, and perceived responsibility for food safety in the supply chain. In the fourth study, opinions on food safety, responsibility for food safety, and experiences with food safety incidents were examined using in-depth interviews with actors in four different supply chains. In the fifth study we examined the influence of different types of food safety incidents on consumers' trust in the producer, the retailer, and the product involved; we also investigated the effects of various types of responses on consumers' trust and behavioral intentions. The results of these studies not only deepen understanding of the process of attributing responsibility and blame under different conditions of food safety incidents, but they also shed light on the effects of measures supply chain members can take in responding to food safety incidents.